Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves
PUBLISHED WEEKLY BY THE TELEPHONY PUBLISHING COMPANY
MONADNOCK BLOCK, CHICAGO

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Entered as second-class matter September 4, 1908, at the post office at Chicago, Ill., under act of March 3, 1897

Volume 62
Number 25

CHICAGO, SATURDAY, JUNE 22, 1912

Subscription - 10 Cents a Copy
$3 a Year U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

A FORECAST.

As Independents we have proven both our courage and our tenacity. All we have to do is to keep a level head, and we shall find we are entering upon a wonderful era of progress and prosperity in the telephone business.—Manford Savage, president National Independent Telephone Association, in address delivered at Indiana convention.

An Argument for Comprehensive Accounting.

In dismissing the application of a telephone company for permission to increase its rates, a state utility commission recently declared that the books of the company had been so poorly kept as to render it impossible to determine with any accuracy how its earnings should be apportioned. The commission ordered the company to install a certain standard system of bookkeeping, stating that later, when it became possible to handle the matter intelligently, an application for an increase might be considered.

This constitutes an effective argument for the adoption of a comprehensive system of accounting which will enable a company at any time to present its case before a utilities commission, or other controlling body. It is not improbable that the raise in rates was merited, particularly as the company had recently taken over the Bell's property in that town, but by reason of this lack of common business prudence, the concern is barred at this time from any consideration of its request. Here is an object lesson which should make an impression on every board of directors of a telephone company, whether or not it faces the liability of confronting similar conditions.

"Public Convenience and Necessity."

In a number of instances in which supervisory powers over telephone companies have been given to state commissions, particularly in those cases where a special public utilities board has been created, it has been not unusual to provide that no new utility concern shall operate in any community unless it is able to present evidence of "public convenience and necessity."

Much interest has been manifested in the manner in which this clause might be enforced and few cases have thus far come through to establish any precedent. The Public Utilities Commission of Kansas has, however, has just handed down a ruling denying a telephone company permission to operate in a town already occupied by a telephone company which should be able to afford adequate service. The decision is as follows:

> Now on this 11th day of June, 1912, comes on to be heard the application of the Farm & Grange Telephone Co. for permission to engage in the business of a public utility in and around the city of Westphalia.
>
> The commission having heard the application, and the evidence, and being fully advised in the premises, finds that public convenience and necessity would not be promoted by permitting another telephone company to build a system in Westphalia, and the prayer of the petitioner should therefore be denied *for the present.*
>
> The commission *further finds* that the telephone service now accorded the people of Westphalia and vicinity by the Westphalia Telephone Co. is *inadequate to meet the needs of the people.*
>
> It is therefore ordered that the said Westphalia Telephone Co. be, and it is hereby, *given thirty days from date hereof in which to place its lines in good condition, and give adequate service. If at the end of that time, adequate service is not given, the commission will consider a motion for a re-hearing.*

The italics in the foregoing are ours. They serve to emphasize an angle of the possibilities of commission control which is particularly interestng.

The Technical vs. The Practical.

The rapid and wide extension of telephone systems has increased the demand for technically trained men. Practical men are daily confronted with problems beyond the scope of their ability. Promoters and operators are coming to realize that economy in construction, equipment maintenance, provision for future development, etc., insure a more certain and lasting return upon their investment.

However, we can not say the technical men are supplanting practical men, for this is not the case. There is room for all. But we must admit that the technical man, going out into the field has the brighter outlook. His methods are based upon

theory that is applicable wherever he may go, east, west, north or south; while the practical man is necessarily influenced by local conditions.

In other words, the practical man's usefulness depends largely upon his familiarity with his physical surroundings. He may have successfully maintained a line through a district subject to non-periodical floods, knowing full well in his own mind that certain more or less expensive changes in the location of the line ought to be made.

He may have gone as far as to recommend such changes, but upon being asked the inevitable question, "Why," he is unable to put up a convincing show of facts. He can only come back with an argument which, when simmered down, might be expressed in the words, "Because it will be better," and he may be a good practical man of long experience.

A man with technical knowledge looks over the situation and states that such and such things ought to be done. He is undaunted by the information that an almost identical plan has been turned down. This may, indeed, cause him to use more caution as he works out his problem. But his conclusions, after everything is set down in cold figures, even to wrecking costs and proceeds from salvage, will show a considerable reduction of annual cost of maintenance and an increase in revenue due to uninterrupted service. Everything tangible is brought out in plain figures which cannot be disputed.

In addition to this, such an array of cold facts has a definite effect upon the inevitable unfavorable public influence, resulting from repeated interruptions to the service. And the counter effect of promptly supplying the customers' requirements is excellent.

His success in getting the work authorized in many cases causes the practical man to become disgruntled; the newcomer is an upstart, a usurper.

There is no just ground for this narrow view. A much broader course is open. The practical man may not be in a position to take a course at a technical school, but as a substitute, a reasonable amount of spare time devoted to a correspondence course will prove highly satisfactory. Almost from the commencement of such a course he will find opportunity for daily application of the heretofore unknown theories and principles which will afford him added confidence and enthusiasm in his work. He will find himself progressing instead of remaining a stationary fixture while the days on the calendar are being marked off.

The Telephone As a Civilizing Factor.

Writing to the Progressive Farmer, Miss Lorien Annette Craig ascribes to the telephone, more than to any other factor the progress which has been made in her rural community.

"In my neighborhood," she says, "every family has a telephone, and I know of nothing which has helped this community so much. From a 'shack' of a school building they have risen to a nice painted building, and the term, which used to be four months, is now seven, and the teacher's salary is almost twice as large. There was no library; now they have a small, but well assorted one, and the books are read with interest by everyone in the community. An improvement association has been organized and the school ground is being worked on. The money was raised to build this house and all other funds needed for expenses, by plans talked over and planned over the telephone. They have parents' meetings over the telephone (we are all on a line). The number of pupils is small, but every child in the community of school age attends. Furthermore, the older sons and daughters are attending college.

"This is what the telephone has done for us and it will do the same thing for any community, I believe."

As an active civilizing agent there is probably nothing more potent than the telephone and its influence is but just in its infancy, at that.

The Cash Value of Education.

Does the earning capacity of the individual increase with his education? According to figures compiled in the office of the Superintendent of Instruction, of Wisconsin, a university training pays dividends of 100 per cent, says a Chicago daily paper.

A laborer earns $1.50 a day; the average university graduate earns $3.60 a day. In other words, the laborer, considered as capital, would be valued at $9,426 to the state, while the graduate would be worth $21,800. In forty years the laborer will have made $18,805 and the other man $43,600.

These figures show that an education is the best investment a man can make. Needless to say, it does not require a university to furnish the stimulus for knowledge. That is inherent in the man. Every man is his own university if he so orders.

The Telephone in Litigation.

An interesting case of the employment of the telephone to adjust a case in litigation is recounted by New England Telephone Topics, which prints the following letter, addressed to an employe of the company:

> Knowing that any unusual or interesting telephone experience will be of particular interest to you I am taking this occasion to tell you of one instance in which the telephone was of material assistance to a lawyer. A case, in which I represented one of the parties as attorney, was pending in the federal court here in Boston. The plaintiff was in Trenton, N. J., the defendant in Northampton, Mass. There was a possibility of making a settlement out of court and with this in view the plaintiff in Trenton called me up on the long-distance telephone. I got into communication with the defendant in Northampton and keeping the two toll lines busy for about half an hour the case was adjusted out of court to the satisfaction of all parties concerned. To have tried the case would have cost, including attorneys' fees, probably a thousand dollars. The telephone charges were less than ten dollars and modesty forbids me to state the amount of the attorney's compensation. Suffice it to say that everybody was satisfied and pleased with the service given us by the operators and with the results achieved.

Truly, as the editor of Topics points out, this is a striking instance of the satisfying efficacy of the telephone in the conduct of modern business!

Some Accomplishments of One Locally-Owned Company

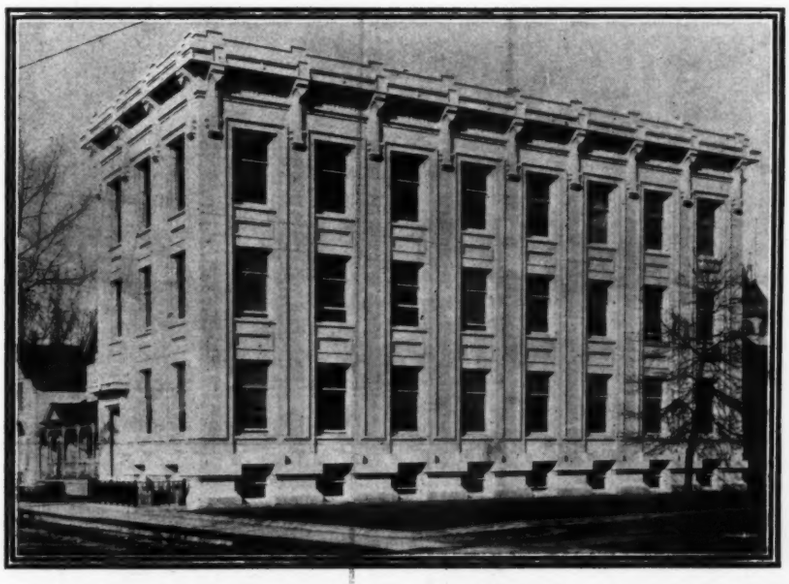
How the Wausau (Wis.) Telephone Co. Entered the Field, Built Up Its System and Eventually Displaced Its Competitor—Interesting Details of Methods Employed in Rebuilding the Plant—A Typical Instance of Independent Success

By Howard I. Crawford
Superintendent Wausau Telephone Co.

The accompaning illustrations show something of what the Wausau Telephone Co. has been doing recently. Wausau, by the way, is the county seat of Marathon county, Wisconsin and with a population of something over 17,000 is the commercial center, not only of Marathon county but of a large territory in the north central part of the state.

Back in the early days of the Independent telephone movement, the people of Wausau became weary of asking the Wisconsin Telephone Co. for good service at reasonable rates and so organized the Wausau Telephone Co. This was in 1894 and 1895. Under this early organization each subscriber was entitled to purchase one share of stock in the company for each telephone he rented. In this way the interests of the subscribers were sure to be well taken care of. That this proved to be the case is shown by the subsequent history of the company.

For about four years there was the usual fight between the "Home" company and the Wisconsin, or "Bell" company. As was the policy in other places, so was the policy of the "Bell" company at Wausau, namely to get the subscribers at any cost, where just a few short months before it had refused to treat longer with the business men of the city as to improvements in the service then being given or to consider a reduction in the price for such service as was given. But it was too late to mend matters now by giving away service and so, after keeping up a constantly losing fight for several years, the Wisconsin Telephone Co. met the Wausau Telephone Co., and satisfactory arrangements were made whereby the Wausau company was left to occupy the local field alone and the Wisconsin company was to connect its lines to and through the local exchange for the benefit of the local subscribers. This arrangement has been in effect since 1904 and has proved advantageous to all.



The Modern, Fireproof Office and Exchange Building of the Wausau Telephone Company, Wausau, Wisconsin.

The telephones and switchboards which were installed in the original installation were "Standards" manufactured by the Standard Electric & Mfg. Co., of Madison, Wis.

Some of these early telephones would "stump" the present day "troubleman" if he did not watch out. For a switch hook, they had a double spring and split hook arrangement which would open one circuit at the same time closing another; anything to get around the patent which was still in force on the now universal gravity hook switch. Of course all the ringers were series.

But conditions of the art improved rapidly and the company believed in having the best to be obtained, so when the American Electric Telephone Co., of Chicago brought out the "Bell Express" switchboards its old boards were thrown away and new Express boards installed.

These switchboards were so good that for years there seemed to be nothing better, but the system had been growing rapidly and everything had been overloaded, switchboards, lines, poles and everything. Everywhere you could see as plainly as though printed on great banners "Come boys, can't you manage to get this one line in somehow" and the "boys" got the line in "somehow," but those of you who have ever "shot trouble" in a system where they "get a line in somehow" know just what condition this exchange got into.

In 1904, the directors, realizing that the time had come to rebuild the entire system, began looking around for some one to take charge of the work and after a good deal of investigation and negotiation, the writer was secured as superintendent.

The summer of 1904 was spent in studying the situation and in investigating the various types of apparatus then on the market. In 1905 the entire city exchange was rebuilt. It was almost entirely of cable, making as nearly an "all cable plant" as was possible in a town built like Wausau. At the same time an automatic switchboard was installed in the central office and on Oct. 7, 1905, the cut over was made from the old manual board to the automatic system.

At this time the company had 675 subscribers and the first installation of automatic equipment was for 700 single lines. Additions have been necessary each year since, until now the company is giving service to approximately 1,300 subscribers.

Along with this growth in subscribers has been a constant increase in cable capacity to care for it. A year ago the directors became convinced that it was no longer practical to put so much cable overhead and plans were made to put the main leads underground. During the summer of 1911 these plans were carried out. In all 23,000 duct feet of underground conduit were laid in 3,600 feet of trench.

This made it possible to place the main cable leads underground in the business section and also to extend them well into the residence portion.

In the underground construction fibre conduit laid in concrete, was used.

The sand and gravel were distributed along the route in

Section of General Office Including Superintendent's Office.

piles about 150 feet apart, and the cement was distributed at about the same intervals.

The concrete was all mixed in a hand mixer as shown in the illustration. This mixer was light enough to be run directly over the loading platform, which was about 15 inches high and one plank was used for an incline. The mixer crew consisted of two men to turn the machine, one cement tender, one water boy, three men wheeling sand and gravel and two men in the ditch to work the concrete into place, grade it, etc.

These latter two and the water boy were not necessary when working on the concrete manholes, for there the cement tender could tend the water as well cement, and the batch was dumped into the form so as not to require any handling at all.

The outfit worked as follows, each wheelbarrow man loaded his barrow with the proper amount of sand and gravel to make two cubic feet of concrete. This was run up onto

Business Office Lobby Showing Telephone Booths.

the mixer and dumped in. The men worked in turns, sometimes two and sometimes more, depending upon how far the mixer was from the supplies of sand and gravel. As soon as the sand and gravel were in the machine, the cement man put in the cement proportioned according to the class of concrete to be made, and followed it with the water. The whole mass was then given two complete turns in the mixer and dumped a quarter turn in the reverse direction. It being dumped directly into the ditch where wanted, the two men there had only to place it properly around the ducts or to tamp it down if for the first course.

After every two or three batches, the machine would be moved ahead a few feet, an operation for which only the men working on it were required and taking but a minute's time.

In pouring the concrete manholes, the machine was set directly over the forms and with a gang of five men, a batch of two cubic feet of concrete was dumped every minute until the entire form was full to the level of the top. The tops in every case were put on later after the side walls had had their initial set. The labor cost on the concrete was 22 cents per cubic yard in place.

The illustration shows the outfit at work putting down the three inch, top covering of concrete.

The only trouble experienced with this method of working was at the start before finding out just how to handle the batch in dumping. Everything went well until the dumping of the first batch onto the ducts. Much to the surprise of everyone, the weight of the concrete forced the ducts out of line, the ends came apart and things looked bad generally. However it did not take long to devise a

The General Office of the Wausau Telephone Co.

hopper and chute to go on under the mixer and into which the batch would be discharged, the inclination of the chute regulating the fall of the concrete. This piece of apparatus soon saved enough concrete which had before been scattered on the sides of the ditch, to pay for itself, to say nothing about the avoidance of trouble with the ducts getting out of line and apart at the ends.

Nearly all of the work did not require any lining of the ditch such as is shown in the illustration nor were planks on which to run the machine necessary, the street surface, macadam in most cases, being firm enough to hold the mixer without danger of the bank caving in.

By this time, the people had begun to realize that the telephone company was a permanent institution and that its central office equipment ought to be in a strictly fireproof building. So plans were made for such a building.

Work on the new building was started in April, 1911, and the completed building was ready for occupancy the first of March, this year.

As shown in the illustration the building is practically a four story office structure, with a front and side finished in white terra cotta and liberally supplied with windows. It is of reinforced concrete construction, the foundation, columns, beams, girders and floor slabs being of reinforced concrete. The only woodwork in the entire building is the interior finish, which is of birch and oak.

The telephone company's general offices are in the basement and the switchboards on the third floor.

The basement, which is a very high one, has been fitted up for offices and here are located the general offices of the company. For this floor there is a separate entrance, the steps of which are protected from the street by the ornamental iron railing shown in the photograph.

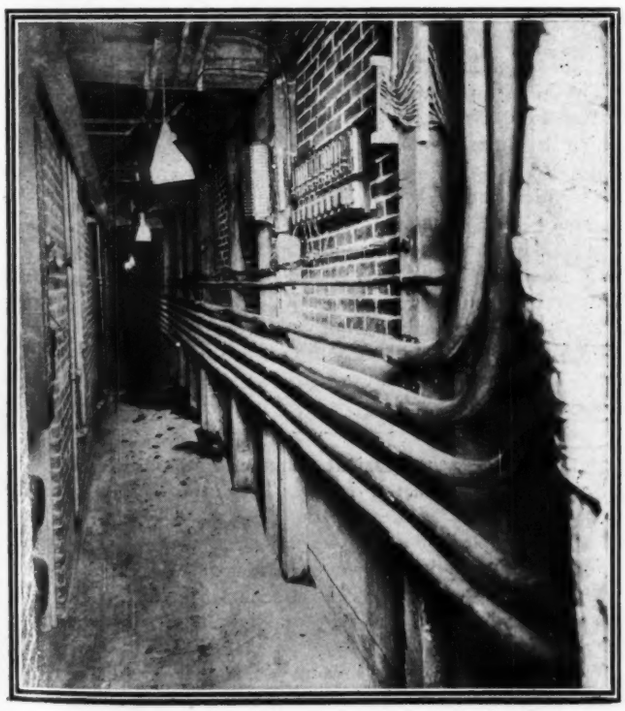
The offices have been arranged with reference to the particular needs and requirements of the place and look somewhat like a bank. In fact this is not far from right, for each subscriber comes to the office to pay his telephone rental bill each month, so that the company's principal dealing with the public at the office, is for the collection of money, hence the bank like counter.

Back of the screen or counter is a large roomy office space with desk room for clerks also for the superintendent's office. It is provided with filing cases and cabinets, so as to have a system to the work which will be complete and still not be a burden to keep up.

Next toward the rear is the directors' room and then the telephone repair shop, with a small storeroom, engine room, heating boiler room and underground fuel room.

Along the entire north side of the basement, is the cable vault in which the underground cables are brought in from the office manhole in Fourth street in front of the office, to the cable shaft where they are carried up to the main distributing frame on the third floor.

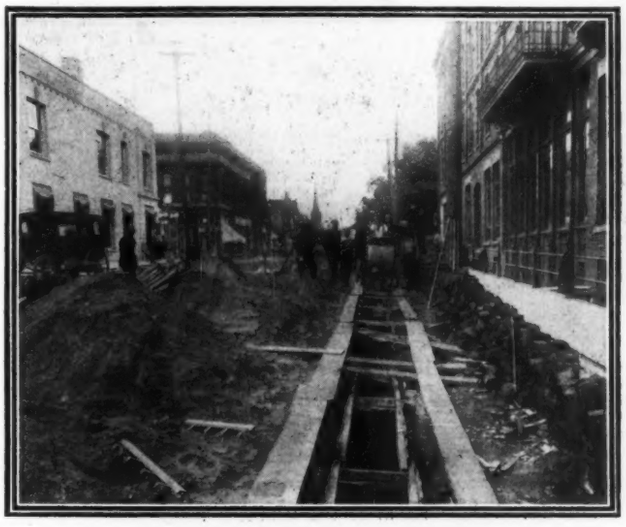
In planning this cable vault, the idea was to have a strictly fireproof passageway from the front of the building to the shaft leading up to the third floor. Another consideration was to have this so narrow that it would never look like a good place to store anything and thereby introduce a fire risk. The shaft leading to the third floor is also strictly fireproof, so that the danger of fire on any



The Cables Are Brought In Through the Cable Vault.

of the floors of the building reaching the cables and doing them damage, is reduced to the minimum.

All cables were tapped in the old office manhole and stubs extended, through underground conduit, to the new office manhole in front of the new building and thence through an underground passageway to the building, entering under the main entrance door. In the passageway the cables are racked up on brackets on the side wall. Inside the building, these brackets are supported on treated 4 in. by 4 in. timbers. This was done in order to avoid bending the cables in and out around the reinforced concrete columns. In the cable shaft, the cables are supported



Installing the Underground Conduit.

at each floor level by malleable iron clamps, bolted to 5-inch channel iron beams placed across the openings in the reinforced concrete floor slabs.

The photograph shows some temporary work to care for toll lines, pending the arrival of underground cable and permanent fixtures for lightning arresters, etc.

One of the temporary half taps is also shown on the extreme right of the illustration. This one being inside, was not covered with a lead sleeve and wiped joint as were all the others, but was specially wrapped and tied up in canvas.

A rear stairway, constructed entirely of reinforced concrete leads to the third floor of the building. Here are located the automatic switchboards shown in the photograph. To the left of the switches are two rooms, one for the long distance switchboard and the other, the operators' rest room. Directly back at the end of the wide passageway shown in the illustration, is a large double door above which is a steel hoisting beam by means of which all the apparatus was hoisted and brought into the building.

The switchboards are of the Automatic Electric Company's three-wire local battery type, which has proven so satisfactory in the past six years that the telephone company would not consider a change at this time. A complete duplicate plant was installed during January and February, so that the cut over on March 9 was merely the cutting in of the new switches and the cutting out of those at the old office.

The first and second floors have been fitted up for office purposes and have been leased as such to business and professional people.

As indicated in the illustrations, the entire office part of the building is lighted by the indirect or "eye comfort" system. The heating is by means of hot water, and the building is well supplied with toilet rooms and lavatories supplied with both hot and cold water. In addition a complete vacuum cleaning plant has been installed. Openings at convenient points in every part of the building furnish quick and easy facilities for cleaning.

The main entrance corridor, main corridor and corridors on both first and second floors are floored with tile and fitted with marble bases.

The steps in the entrance corridor, as well as the main stairs, are of heavy white Italian marble with marble risers and stringers and marble balustrade wall to match.

The building complete with office furnishings, heating, etc., but exclusive of the telephone switchboards cost approximately $45,000.

Nathan Heinemann, president of the company, is the

The Switchboard Room of the Wausau Telephone Company.

proprietor of Wausau's leading department store and is interested in most of the business enterprises of that part of the state.

E. B. Thayer, vice-president, is the owner and publisher of the Wausau Pilot, the leading newspaper of the Wisconsin Valley, also a director of the First National Bank, of Wausau, as well as being interested in various other enterprises.

W. W. Albers, treasurer, is the proprietor of two of Wausau's best drug stores; is practically owner of the Wausau Sandpaper Co.; is a member of the school board, on which he has been one of the leading figures. He is also state senator from that district.

James Montgomery, secretary, for many years was the proprietor of the largest and best stocked hardware store in northern Wisconsin, selling out a few years ago to devote his entire time to the forest products end of his business. He has been one of the leaders in the Building and Loan Association, also a heavy stockholder in the Wausau Street Railroad Co., as well as giving largely of his time and energy to other public enterprises.

G. D. Jones, counsel, is the active member of the law firm of Hurley & Jones; is the head of the G. D. Jones Land Co.; is a director in the following: The First National Bank, Wausau Street Railroad Co., Great Northern Life Insurance Co., Employers' Mutual Liability Insurance Co., of Wisconsin. He is a member of the city school board, also one of the regents of the state university, and in addition is interested in many other enterprises.

Program for Annual Convention of the A. I. E. E.

The program for the annual convention of the American Institute of Electrical Engineers, which is to be held in Boston, June 24-28, has been arranged. The headquarters for the convention will be at the Hotel Somerset, where all the technical sessions will be held. Papers which will be presented at the convention relating to telephone work are:

"Telephone and Electric Operating Companies and Other Industrial Schools in and About New York City," by Samuel Sheldon.

"The Wiring of Large Buildings for Telephone Service," by Fred L. Rhodes.

"Vibrations of Telephone Diaphragms," by Chas. F. Meyer and J. B. Whitehead.

These papers will be read and discussed at the meeting on Thursday, June 27, the mornings session of which will be a joint meeting with the Society for the Promotion of Engineering Education.

The entertainment features of the convention will include visits to the generating stations of the Edison Electric Illuminating Co. and the Boston Elevated Railroad Co. at South Boston, the Massachusetts Institute of Technology and the Lynn works of the General Electric Co. A concert, boat and automobile trips and a theater party will be provided for the entertainment of the ladies.

Fears Resumption of Unfair Methods.

The very evils that were feared by the public in the merger, at San Francisco, of the Pacific Bell with the Home company are complained of in a letter addressed to the board of supervisors by I. J. Truman, Jr., an attorney. With competition gone, the Pacific company is said to be resorting to extortion and excessive charges to swell its income illegally. The public being obliged to use its service, the threat to take out a telephone is the club for enforcing the collection of bills, according to Truman.

The attorney says he has been charged for a larger number of excess calls than were actually used, and he has been unable to get any satisfaction from the company. He asks that the supervisors consider some regulation to protect the people.

The disputed bill is for May, on which an overcharge of $3.20 is said to be made for excess calls.

"I would not call your attention to so small a matter," writes Truman, "did it not indicate to me the intention of the company to again inaugurate a system of extortion which they abandoned upon the advent of the Home Telephone Co."

Illinois District Association Meets.

The McLean County (Ill.) Independent Telephone Association held a meeting on Tuesday at Bloomington, Ill., at which twenty managers in the district were present. A general discussion was had of the new toll and long distance lines which have recently been completed, or which are now in process of construction.

H. B. Gilmore, secretary and manager of the Independent Toll Clearing Co., of Springfield, the Illinois clearing house for the Independent organizations of the state, was present and discussed clearing house matters with the members of the association. The Kinloch-Bloomington Telephone Co. was host in the evening at a dinner at the Illinois Hotel.

Opposes Physical Connection Ruling.

Suit has been started in the Thurston county superior court by the Benton County Independent Telephone Co. and the Pacific Telephone & Telegraph Co., appealing from the ruling of the Public Service Commission ordering a physical connection between the Benton county company and the Sunnyside Telephone Co., at Grandview, Outlook and Sunnyside, Wash.

The action asks that the superior court grant a writ of review of the commission's ruling, and pending such review the superior court enjoin the commission from enforcing its order.

The Benton county company is allied with the Bell system and has, it claims, an agreement with the Pacific company whereby the physical connection was prohibited.

The case is of considerable interest, as the order directing physical connection was the first of its kind made by the commission.

How Telephone Situation Is Being Worked Out in Ohio

Plans Now Said to be Practically Perfected to Eliminate Competing Systems in Various Communities Throughout the State—Morgan Companies, with Frank A. Davis as Their Spokesman, Said to be Leading Movement for Consolidation.

A plan is now being formulated, covering the entire state of Ohio, looking to an exchange of properties to the end that competing local plants shall be merged and duplication of service cease. The initiative in the present negotiations is being taken almost entirely by the companies owned by J. P. Morgan & Co., Frank A. Davis, president of the Morgan companies in Ohio, being the principal directing force behind the proposed exchange of properties.

Many of the Bell plants throughout the state are to be absorbed by the Independents, when there will be a universal exchange of service between Bell and Independent plants. This, of course, is but the general object of end sought in the present negotiations. Definite details remain to be worked out by representatives of the two interests and the Ohio Public Service Commission.

Some progress has already been made in the elimination of duplicate plants in this state. Now that the entire policy has been admitted it is the belief of the public service commissioners that in the consolidation of many small plants through the state the two telephone interests were merely testing the present public utilities law. The results in the cases of these smaller telephone mergers have proved successful, the policies of the two interests have been settled to conform to this ultimate end.

Complaints received by the Public Service Commission served to bring the purposes of the telephone executives to light. These complaints alleged that in many parts of the state the Bell and Independent plants were refusing to extend their lines. Residents of Dayton, Ohio, were particularly insistent. They declared that the service of the Home Telephone Co. was far superior to that of the Bell company, but that the former declined to extend its service.

Informal inquiry was made of President Frank A. Davis as to the reasons for refusing extensions. No formal hearing was arranged because the commission desired to have some insight into the underlying purposes before fixing a time for investigation. This brought the policy of the two interests to light really before plans were concrete. Mr. Davis said: "The managements of the two interests look forward to the ultimate merging of the two systems in all principal places in the state. We do not care to engage in the extension of our plant which would only increase the amount of wreckage when the merging takes place."

This placed an entirely new face on the telephone outlook from the viewpoint of the state commission. It was at once announced that a formal investigation of the plans and purposes of the two interests would be started June 20. Members of the commission generally have expressed approval of the end sought. The details promise to give that body a monumental task and to make the final consummation of the plans a thing of somewhat distant future. Commissioner O. P. Gothlin, however, expresses the opinion that he will be able to conclude the details of such a plan by the middle of July. It would, of course, remain for the representatives of the two interests to agree upon these details.

As defined by President Davis and Harry M. Daugherty, of Columbus, counsel for the Independents, the deal will not be in the form of a merger or absorption. It is expected to work out an exchange of plants throughout the state, so that in no city will there be two telephone systems.

The United States Telephone Co. which, with its long distance lines, bound together the Indeepndent companies, has been the backbone of the Bell opposition. In the last two years, this company has not extended its lines except in a small way. It also has waived its exclusive contract with the Independent companies. This has resulted in connections being made by the toll lines of the A. T. & T. Co. with many of the Independent exchanges.

The United States Telephone Co. has more than 30,000 miles of long distance lines, reaching all cities in the state, except Cincinnati, and connecting with Independent long distance companies in adjoining states. Its capitalization consists of $2,715,000 5 per cent. bonds, $1,095,000 6 per cent. preferred stock and $3,100,000 common stock. It also controls through stock ownership the Citizens Telephone & Message Co., of Fostoria; the Columbiana County Telephone Co.; the Findlay Home Telephone Co.; the Lancaster Telephone Co.; the Massillon Telephone Co., the Stark County Telephone Co.; the Youngstown Telephone Co. and the Zanesville Telephone Co. These local companies have about 18,000 subscribers.

The Cuyahoga Telephone Co., the Columbus Citizens Telephone Co., the Toledo Home Telephone Co., the Dayton Home Telephone Co. and the United States Telephone Co. came into the control of J. P. Morgan & Co. about four years ago. These companies with their subsidiaries furnish telephone service to a population of over 1,500,000 in the state. In addition the long distance lines reach practically every county except Hamilton county and every city or town except Cincinnati.

The Morgan local exchanges are operating in competition with the Central Union Telephone Co., controlled by the American Telephone & Telegraph Co., in all cities served except Cleveland, where the Cleveland Telephone Co. is a subsidiary of the Western Telephone & Telegraph Co., also owned by the A. T. & T. Co. The Morgan companies have nearly 100,000 telephones in use. They have done very little extension work in the last two years. The officers of the companies now say, that they knew that sooner or later a consolidation would be effected and they have refrained from making expenditures for the which the Public Service Commission might allow them nothing.

The Cuyahoga company operates about 30,000 telephones in Cleveland and vicinity. It also has 120 miles of toll line, connecting with the United States Telephone Co. Its capitalization consists of $3,500,000 5 per cent. bonds, $1,437,350 6 per cent. preferred and $1,500,000 common stock. Its gross earnings run over $900,000 annually.

The Columbus Citizens has about $16,000 telephones in Columbus and, in addition, controls through stock ownership and by lease, the Franklin County Telephone Co., the Fayette County Home Telephone Co., and the Madison County Telephone Co., operating between 6,000 and 8,000 telephones additional. It owns a fine office building in Columbus. This company has $650,000 5 per cent. bonds, $802,100 6 per cent. preferred and $750,000 common stock.

The Toledo Home Telephone Co. operates about 15,000 telephones in Toledo and Lucas county. Its capitalization consists of $1,275,500 on which 6 per cent. dividends are paid and $1,600,000 5 per cent. bonds. The Home Telephone Co., of Dayton, has about 9,000 subscribers. It also controls the Montgomery County Telephone Co. and its capitalization consists of $250,000 5 per cent. bonds, $600,000 6 per cent. preferred and $600,000 common stock.

Throughout all of the preliminary planning for the proposed exchange of properties the Bell telephone interests have maintained a discreet silence. All of the aggressive moves have been made by the other side

Where Commissions Have Jurisdiction Over Telephones

Complete List of States in Which Utility Bodies Exercise Supervision Over Telephone Companies—Official Titles of Such Bodies and Scope of Their Powers—Thirty-One States Have Now Wholly or Partially Delegated Control of This Nature.

At the suggestion of TELEPHONY, Miss N. Thompson, assistant secretary of the National Independent Telephone Association, has compiled a complete list of states in which there exist utilities commissions, having jurisdiction over telephone companies. This list is appended hereto, together with the commissions' official designation and address and the scope of their authority over telephone properties. It should prove of interest and practical value.

The compilation does not include the Interstate Commerce Commission, with headquarters at Washington, D. C., which has general supervision over all telephone companies doing an interstate business. In Canada the Railway Commission, at Ottawa, exercises general jurisdiction over the entire Dominion. The Ontario Railway & Municipal Board confines its activities to that province, with headquarters at Toronto.

STATES GIVING SUPERVISION TO COMMISSIONS.

ALABAMA.—Railroad Commission of the State of Alabama, Montgomery. Rates and service.

ARIZONA.—Arizona Corporation Commission, Phoenix. New state constitution provides that jurisdiction or commission shall extend to cover all public service corporations. State legislature now in session will enact laws governing acts of commission.

CALIFORNIA.—Railroad Commission of the State of California, San Francisco. Rates (schedules required), service, issue of securities, mergers or consolidations. Certificate of public necessity required.

CONNECTICUT.—Public Utilities Commission, Hartford. Rates and service.

FLORIDA.—Railroad Commission of the State of Florida, Tallahassee. Rates and service.

GEORGIA.—Railroad Commission of Georgia, Atlanta. Rates, service, issue of securities.

KANSAS.—Public Utilities Commission, Topeka. Rates, (schedules required), service, merger or consolidations. Certificate of public necessity required.

KENTUCKY.—Railroad Commission of Kentucky, Frankfort. Rates and service.

LOUISIANA.—Railroad Commission of Louisiana, Baton Rouge. Rates and service.

MARYLAND.—Public Service Commission, Baltimore. Rates, (schedules required), service, issue of securities, mergers or consolidations. Certificate of public necessity required.

MASSACHUSETTS.—Massachusetts Highway Commission, Boston. General supervision. May make recommendations as to rates and service.

MICHIGAN.—Michigan Railroad Commission, Lansing. Rates, (schedules required), service, issue of securities, mergers or consolidations. Certificate of public necessity required.

MISSISSIPPI.—Mississippi Railroad Commission, Jackson. Rates (schedules required), and service.

NEBRASKA.—Nebraska State Railway Commission, Lincoln. Rates(schedules required), service, issue of new securities, consolidations or mergers.

NEVADA.—Railroad Commission of Nevada, Carson City. Rates (schedules required), and service.

NEW HAMPSHIRE.—Public Service Commission of New Hampshire, Concord. Rates (schedules required), service, issue of securities, consolidations or mergers. Certificate of public necessity required.

NEW JERSEY.—Board of Public Utility Commissioners, Trenton. Rates (may require schedules filed), service, issue of securities and mergers or consolidations.

NEW YORK.—Public Service Commission of New York (Second District), Albany. Rates (schedules required), service, issue of securities, mergers or consolidations. Certificate of public necessity required.

NORTH CAROLINA.—Corporation Commission of North Carolina, Raleigh. Rates and service.

NORTH DAKOTA.—Board of Railroad Commissioners of the State of North Dakota, Bismarck. Rates (schedules required).

OHIO.—Public Service Commisssion, Columbia. Rates (schedules required), service, issue of securities, mergers or consolidations. Certificates of public necessity required.

OKLAHOMA.—Corporation Commission of Oklahoma, Oklahoma City. Rates and service.

OREGON.—Railroad Commission of Oregon, Salem. Public utilities measure was passed at last session of the legislature, under the initiative and referendum provision of the state constitution. It will be voted upon at the general election, November 5, next, and if carried will become a law. It provides for jurisdiction over rates and service.

PENNSYLVANIA.—Pennsylvania State Railroad Commission, Harrisburg. Rates (schedules required), and service.

RHODE ISIAND.—Board of Public Utilities, Providence. Act to create this board was passed in April, 1912. Has jurisdiction over telephone companies.

SOUTH CAROLINA.—Railroad Commission of South Carolina, Columbia. Rates (may require schedules filed) and service.

SOUTH DAKOTA.—Board of Railroad Commissioners, Pierre. Rates (schedules required), and service.

VERMONT.—Public Service Commission, Montpelier (post office, Newport). Rates (may require schedules filed), service and issue of securities.

VIRGINIA.—State Corporation Commission, Richmond. Rates, service and issue of securities.

WASHINGTON.—Public Service Commission, Olympia. Rates (sechedules required), and service.

WISCONSIN.—Railroad Commission of Wisconsin, Madison. Rates (schedules required), service, issue of securities, mergers or consolidations. Certificate of public necessity required.

Tacoma May Fix Rates in New Franchise.

The Washington Public Service Commission has notified city officials of Tacoma that it may designate in its franchise to the Sunset (Pacific Bell) Telephone & Telegraph Co. the rates which the company may charge. The state commission says that the municipal commission may stipulate rates and that they will stand unless they are shown to be unjust.

Another letter on the telephone question has been received by Mayor Seymour from Samuel Hill, president of the Home Telephone & Telegraph Co. at Portland, Ore. Mr. Hill warns the city officials not to buy up the Sunset company's interests. He urges that the city arrange so that competition in the telephone business will be assured, and he avers that this is the only method by which "quality," efficiency of service and cheerful service can be obtained. The city attorney is still working on a franchise.

A Quartet of Men Prominent in the Telephone Field

R. E. MATTISON, general commercial superintendent for the Lincoln Telephone & Telegraph Co., Lincoln, Neb., entered the telephone business in 1901, as solicitor for the Cuyahoga Telephone Co., Cleveland, Ohio. In 1903 he was made general contract agent for the same company. In 1904 he became assistant general manager for the Lincoln Telephone Co. As secretary and treasurer of the Nebraska Independent Telephone Association since 1905, he organized district associations throughout the state. He also assisted in the organization of the Telephone Traffic Assn. of Nebraska, the Independent Telephone System of Nebraska and the Telephone Traffic Commission in all of which he held the offices of secretary and treasurer. In 1910 he became general manager of the Independent Telephone Co., of Omaha, assuming his present duties in the early part of 1912. He has been a prominent figure at national association meetings. Mr. Mattison was born in 1878, in Hinckley, Ohio, and was educated in the public schools of Detroit, Mich. He is a member of the Lincoln and Omaha commercial clubs.

CLARENCE A ANDERSON, chief engineer and a director of the Anderson Electric & Mfg. Co., Chicago, was born in Salina, Kans., August 5, 1881. He received his education in the schools of Salina and of Denver, Colo. He is a member of the Western Society of Engineers and the Elks. Mr. Anderson went with the National Automatic Telephone Co., of Chicago, in 1899, assembling telephones. Later he was with the Stromberg-Carlson Telephone Mfg. Co., returning again to the National, with which company he continued until 1902, installing switchboards. In 1902 he entered the operating field, handling exchanges at Lindsborg and Marquette, Kans. Lockout and selective ringing problems occupied Mr. Anderson during the years from 1899 to 1906, in which time he took out a number of patents. The next two years were spent in the experimental laboratory of the Western Electric Co. in development work, working with Bell engineers. In 1908 he became associated with others and organized the Anderson Electric & Mfg. Co., which is now engaged in the manufacture of the Anderson lockout system.

WILLIAM J. MELCHERS, general manager of the Union Telephone Co., Owosso, Mich., was born in Saginaw, Mich., August 14, 1873. He is a graduate of the University of Michigan, with the degrees, B. S. and E. E. He is a member of the A. A. A. S., the Masons and the Phi Delta Theta. In June, 1895, he became wire chief for the Michigan Telephone Co., remaining three years. From June, 1898, to July, 1899, he was local manager for the Valley Telephone Co., at Saginaw. From 1899 to November, 1902, he was district manager for the Michigan Telephone Co., at Saginaw. The next year he was engineer for the Hecla Portland Cement & Coal Co., at Bay City. In November, 1903, he became general manager for the Union company, then at Alma, and has since continued in that capacity. Mr. Melchers was active in organizing the Michigan Independent Telephone & Traffic Assn., of which he is vice-president and a director. He is a member of the executive committee of the Michigan association, a director of the Valley Home and has been a director of the national association since 1911.

ARTHUR E. CASE, one of the organizers and chief engineer of the Delta Electric Co., Chicago, was born in Marion, Ind., October 26, 1886. He was educated in the schools of that city and, in 1906, graduated from the Bliss Electrical School, Washington, D. C. The degree of Master of Electricity was conferred in 1911. He is an associate member of the A. I. E. E. Mr. Case became interested in the electrical industry at the age of twelve years, spending his spare time after school about the telephone exchange at Marion. After his graduation from Bliss he went to work for the United Telephone Co., at Marion, as switchboard man and wire chief in several exchanges. Two and a half years later he went with the Baird Electric Co. as installer and salesman. He developed the Baird lockout party line system and brought out the Baird automatic master selector and the Baird automatic prepayment pay station and meter. The Delta company was organized in the spring of 1912 to take over the stock, tools, etc., for the manufacture of the Baird lockout party line systems.

Ohio Decision Sustaining Exclusive Toll Contract

Summary of Ruling of Circuit Court, of Van Wert County, in Case Involving United States Company's Ninty-nine Year Long Distance Agreement with Middlepoint Home Company—This Decision was Affirmed by the Supreme Court without Comment

A short time ago the Ohio supreme court affirmed the decision of the circuit court, of Van Wert county, in the case of the United States Telephone Co. vs. the Middlepoint Home Telephone Co., which sustained the validity of the exclusive toll contract existing between the two contestants. The supreme court, without comment entered an order on the record affirming the decision of Judge Allread.

This ruling of the circuit court was printed in full in pamphlet form by the National Independent Telephone Association shortly after it was rendered, in July, 1910, and was widely distributed. Since the supreme court has sustained it, however, a number of requests have come to TELEPHONY to print the substance of the decision.

Briefly, the facts were these: The Middleport Home company operating a local plant in Middlepoint, with some toll lines connecting, entered into an agreement with the United States, a long distance company, for the connection of the latter's lines with the Middlepoint company's local board. The life of the contract was ninety-years, during which period neither company was to connect with a competing organization. The principal points of the contract, which was dated September 2, 1904, were outlined by the court, as follows:

(Paragraph 4). "The second party (the Middlepoint company) . . . agrees to transmit all business to points not now reached by it or its own line over lines of the first party, except in Van Wert country.

(Paragraph —). "The first party (the United States company) agrees to transmit all messages destined to points on the lines of the second party, not reached by its own system of wires, to and over the lines owned or controlled by said second party lying within Van Wert county, Ohio."

(Paragraph 2). "Said partners agree not to enter into any contract with any other person, firm, or corporation whereby any of the rights, privileges or advantages herein acquired by either party may be impaired."

(Paragraph 5). "Each party hereto agrees to receive from the other all messages destined to points within its territory or connecting lines which may be delivered to it by the other party hereto."

(Paragraph 6). "As to all messages received by the Middlepoint company and transmitted over the lines of the United States company, the Middlepoint company shall receive 25 per cent. of the toll charges, and the United States company the balance, provided the Middlepoint company shall in no case receive more than 12½ cents for any message."

(Paragraph 14). "This contract shall be in force for a period of ninety-nine years from the date hereof."

On November 29, 1907, the Middlepoint company entered into an agreement with the Central Union (Bell) Telephone Co. looking to an interchange of business along the same lines as existed between it and the United States company. It did not cancel the original contract, but took on the Bell connections in addition to those of the Independent company. These were added December 23, 1907, and were maintained until February 23, 1908, when terminated by a restraining order of the common pleas court.

The court defined the position of the United States company in these words:

> In the year 1898 the United States Telephone Co. was incorporated under the laws of Ohio as a long distance company and intended by its promoters to meet the needs and demands of the various so-called Independent local companies. It obtained various similar ninety-nine-year contracts from local telephone companies, upon the faith of which capital was invested in the construction of metallic circuits and other improved equipment and the extension of long distance service. The zone of influence of the United States companies comprises chiefly the State of Ohio, portions of Indiana, Michigan, Illinois, with limited service to points beyond. The service of the United States company is distributive to the public through local exchanges and pay station booths. The alliance of the United States and the various local companies, through the operating contracts was, within the zone of its influence, in a general sense a rival and competitor of the Bell System.

The decision then went on to discuss the questions involved, as follows:

There is considerable testimony as to imperfect and inferior service at different points over the lines of the United States company and its connections. But we think that the nature of this service is not of such a character as to materially differ from that contemplated by the contract with the United States company, nor has the proper foundation been laid for a termination of the contract upon that ground. The case rests upon the validity of the ninety-nine-year contract. Independent of the obligations of the contract there is no doubt of the right of the Middlepoint company to maintain connections with and obtain the advantages of both companies. The Middlepoint company, therefore, is only restrained, if at all, by virtue of the obligations of its contract.

The Middlepoint company contends that the dual connections and long distance service afforded thereby greatly extends and improves the service of its patrons and facilitates the public necessity represented by its charter and the duties it has assumed. It therefore justifies its violation of the exclusive and nonpairment covenants of its contract with the United States company upon the ground that such stipulations are ultra vires and opposed to public policy.

Sec. 3455 R. S., among other provisions, authorizes a telephone company in respect to other lines to "join" with any other company or association in conducting, leasing, owning, using or maintaining such line or lines upon such terms as may be agreed upon.

This authority is sufficiently comprehensive to uphold an operating contract between telephone companies based upon mutual exchange of business. The terms "using" and "maintaining" so employed are not without significance and application in the present case. To "use" another telegraph or telephone line included the necessary physical connection and operating control for a limited time. To "maintain" another line may reasonably and fairly include not only the physical agencies necessary in operation, but may be extended to the guaranteeing or furnishing of business.

It is, however, contended by the Middlepoint company, and in our opinion correctly, that the letter of the statute conferring charter power is not the absolute test of ultra vires. The well established rules of public policy as reflected in the trend of decided cases and statutes in pari materia will often be engrafted as exceptions upon a general grant of power by the charter act. The special provisions of the enabling act may, however, reflect a legislative intent upon the subject of public policy, and if so, must be applied, although in some measure modifying the pre-existing rules.

But more general phraseology should not be held to ever turn or subvert long continued and well settled rules of public policy.

Assuming then that the contract under consideration is within the letter of the statute, we proceed to the consideration of whether it is obnoxious to the established rules of public policy.

The court outlined the issues in the case, discussed the

question of public policy and disposed of various citations as follows:

The contract under consideration is attacked upon the ground (1) that it is in restraint of trade and tends to stifle and restrict competition, and (2) that disables the contracting public service corporations in respect to certain public duties made incumbent by the charter and regulating acts.

In the consideration of the principles of public policy as affecting the validity of contracts the courts do not proceed upon abstract theory, nor allow themselves to be controlled by a narrow view of the terms employed. To vitiate a contract in such case the public welfare in a practical sense must be injuriously affected either in fact or in logical and natural tendency. . . .

It is therefore, clear that the provisions of the contract between the telephone companies must be considered in the light of surrounding facts, its real scope, purpose and logical tendency as affecting the public interest.

It can hardly be doubted that at the time of its execution, and in view of the existing situation, the contract was not only beneficial to the contracting parties, but conducive to the public interest. It gave to each company a needed service and a mutual exchange of business. The Middlepoint company secured the advantages of the highway of the United States company for long distance service for a long term of years, and of the interchange of business.

The contract in no wise affected the service of the Bell companies in their usual mode and through their chosen agencies, nor as applied to existing conditions did it tend to stifle or suppress competition. On the contrary, from a practical and business standpoint competition was thereby promoted and made more effective. Any other view sacrifices substance to mere shadow and practical judgment to abstract theory.

It must be kept in mind that the combining companies here were substantially and practically non-competitive, and herein is found the distinction between the case at bar and many of those cited. . . .

None of these cases, in our view, apply to combinations between non-competing companies, where the legitimate effect and natural tendency is to strengthen their efficiency in a field of competition. The combination of non-competitive telephone companies for extension of service is brought within the general policy of the law by Sec. 3455 R. S., and should be upheld unless there appears some injurious feature not contemplated by the statute.

It is urged that the combination by ninety-nine year contracts between the United States company and a large number of local companies threatens monopoly as offensive as that charged against the Bell system, and ought not, as a matter of public policy, to be sustained. It is not claimed, however, that all this might not be done by consolidation, purchase or lease, and we cannot perceive why it may not also be done by operating contracts. Should the combination ever reach the stage of monopoly by crushing out its powerful rival, or by combining with it, we do not doubt the power of the courts to afford a remedy and protect the public. But we cannot bring ourselves to the conclusion that it should be condemned while engaged in the struggle of competition upon remote possibilities. . . .

It is, however, contended that the exclusive character of the contract and its long time are features rendering it obnoxious to public policy. . .

The Middlepoint company and its predecessors to whose property and rights it succeeds sought or at least accepted the contracts and obtained the benefits. It not only gave but received exclusive rights. Without the advantages the contract gave the Middlepoint company would not in all probability have attracted the notice of the Bell company nor have been able to secure connection with that system. . . .

It is argued that it was the charter right of the Middlepoint company to extend its service to long distance and vice versa as to the United States company, and that the exclusive contract disabled each from furnishing such added service. But the right extended by Sec. 3455 R. S., to extend lines without charter amendment, must be read and harmonized with other express provisions of the charter law authorizing consolidation, leasing and operating contracts. The Middlepoint company, therefore, had its option to extend its lines by construction, purchase, lease, or by operating contract. Any of the modes answer the charter duty.

The court then took up the allegation that the United States contract created discriminatory service—that the Middlepoint company was compelled by statute to afford both Independent and Bell connections to its subscribers. The decision said:

Again it is urged that the exclusive and non-impairment covenants of the contract disable the Middlepoint company from obtaining for its patrons the choice of routes and added service afforded by the dual connection. The question so urged is not free from doubt and is the subject of conflicting decisions. Closely allied to this question is also that of discrimination in service as applied to telephone exchanges. The validity of exclusive contracts depends upon the extent to which proprietary rights are enforced in cases of public service corporations. By assuming public duties the corporation yields a portion of its proprietary dominion over its business and becomes liable to certain mandatory duties, among others to serve the public without discrimination.

The case of State ex rel v. Telephone Co., 36 O. S., 296, holds telephone companies to the duty of indiscriminate service to the public. This case arose upon the refusal of the telephone company to install an instrument in the office of a railway company having a telegraph department. The refusal was based upon the ground that the telephone company had an exclusive contract with another telegraph company and refused the railroad company its service because it had charge of a telegraph department. But it will be observed that the railroad company sought this service as one of the public. Its application and the service demanded was no different from that afforded other members of the public. The objection of the telephone company was purely personal. The applicant was a competitor of a patron of the telephone company holding an exclusive contract. The refusal of the telephone company was therefore a discrimination among the public whom the telephone company had engaged to serve indiscriminately.

But this rule of indiscriminate service applies only to the public. It does not apply as between public service companies desiring physical connection of plants or joint use of facilities. There is a marked distinction between primary service to the public of a public service company by its own facilities and secondary service by yielding up its facilities and equipment to another public corporation to facilitate the latter's service.

The primary service is guaranteed by law, while the secondary service in the absence of further legislation can only be secured by contract. . . .

It is, however, contended that Sec. 3462 R. S. requiring interchange of despatches between telegraph companies, made applicable to telephone companies by Sec. 3471 R. S., from the nature of the telephone business extends to physical connection and joint use of wires and apparatus.

Section 3462 R. S. prescribes the mandatory duties imposed by law. This section must be read with Sec. 3455 prescribing the powers of voluntary contract. The former includes as a mandatory duty the interchange of despatches, while the latter includes as a right to be obtained by contract the "use" of other lines.

Section 3462 as applied to telegraph companies does not contemplate physical connection and joint use of wires, and a more extended construction ought not to be applied to telephone companies. Despatches may be transmitted by telephone as by telegraph. But the use of through wires is not contemplated by the statute as to either telephone or telegraph lines. To discriminate and hold that telegraph despatches are only required to be delivered from one line to another in relay, while telephone despatches comprehend verbal messages to be carried through the physical connection and joint use of different lines cannot reasonably be sustained.

In summing up the entire case and concluding its decision the court said:

The existing contract between the two telephone companies in this case does not by express terms or by necessary inference prevent the Middlepoint company from securing an extension of its service through a company other than the United States company to points not within the territory of the latter company, so long as in doing so it does not impair the existing contract. We do not, therefore, decide the effect of such a contract where the connection is made and the scope of the con-

tract is such as not to amount to an impairment of the contract under consideration. The present contract of the Central Union company applies to all business with the Middlepoint company or any subscriber of the Middlepoint company who desires to send over the lines of the Central Union, and contains an explicit stipulation that the Middlepoint company will make connection between the lines of the subscribers to its exchange or exchanges and the toll lines of the Central Union company, so that the contract is directly an impairment of the existing contract with the United States company. This is confirmed amply by the testimony showing that during the two months the Central Union toll contract was in existence, substantially all the business routed over the Central Union lines was business that would under the contract have been entitled to go over the United States lines.

It follows, therefore, that an injunction should be made perpetual against the defendant company from making the connections with the Central Union company under the present contract, and from routing business over that company to points within the territory reached by the United States company lines.

The foregoing ruling, now sustained by the highest court in the state, is of interest, not only to the parties directly involved, but to telephone companies throughout the country, as establishing the validity of an exclusive toll contract. The National association, which has its offices in the McCormick Building, Chicago, still has a number of copies of the decision in its files and will mail them, upon request, to those desiring more complete information.

Sue at Louisville for Claimed Excess Charges.

Attorneys representing the Citizens Public Utility Club of Louisville, Ky., have filed a suit against the Cumberland Telephone & Telegraph Co. for the collection of all the charges in excess of the franchise rates by the Cumberland company for service since March 6, 1909, when the rate regulating ordinance, which was declared valid recently by the United States Supreme Court, went into effect. It is stated in the petition that fully $100,000 has been illegally collected by the Cumberland company. The suit asks that the Cumberland be compelled to bring its books into court to show the sums that have been collected in excess of the legal rate.

City Attorney Blakey believes the decision of the supreme court will cover this matter and that all telephone subscribers will get their money forthwith. He will ask from Judge Evans an order for the overcharges.

Work Again Begun at Quebec.

Weather conditions proving favorable, the work of constructing the system of the big Independent plant at Quebec, Can., has again been undertaken by the Montcalm Construction Co. About 85 per cent. of the underground work was completed last fall and the balance will be rushed through at once.

Ground has been broken for the exchange building which will be erected at a cost of approximately $25,000, not including the real estate. The building will be about 128 ft. by 41 ft., and will be either two or three stories in height. It will be finished October 1.

It is expected that operation will be commenced December 1, with 3,500 stations connected. This number will be increased within the ensuing year to between six or seven thousand. The plant is to be all cable, with 40 per cent. underground. The equipment will be automatic.

New Stock and Purchase Permitted in Kansas.

The Kansas Public Utilities Commission has granted permission to the Protection Telephone Co., of Protection, Kans., to issue $1,750 additional stock. The proceeds are to be applied to the retirement of outstanding notes and the payment for material now in hand.

An application having been filed by the United Telephone Co. asking the right to purchase the property and franchises of the Downs Western Telephone Co., of Downs, Kans., operating in Osborne, Rooks, Smith and Phillips counties, the board has ruled that the United company may issue $27,500 of its stock, at par, for the purpose.

Queries on Theory and Practice

Aluminum Wire Not Recommended for Telephone Work.

Can you tell me why aluminum wire is not used more for telephone work? No. 12 iron wire weighs about 165 lbs. per mile and has a poorer conductivity than No. 14 aluminum wire, which I believe weighs only 19.75 lbs. per mile. I have been told and have read that aluminum has the tensile strength necessary for line work. At the weights given it should be slightly cheaper than iron and much easier to keep up. Can you please inform me why it is not used more?

Aluminum wire has been used but little for telephone work owing to the difference in cost between it and iron wire. Its tensile strength is high in reference to its specific gravity and for that reason a saving of about four or five poles per mile could be made by greater pole spacing.

Its chief disadvantage is its large coefficient of expansion which causes too great a sag in the lines in summer and too great a strain on the poles and arms in extreme cold weather. The lasting qualities are not much better than copper. Its conductivity per unit of cross section is not so high as that of copper and in consequence for equal conductivity, the area exposed to wind pressure is large. The weights per mile ohm at 68 degrees Fahrenheit are as follows: Aluminum 99 per cent. pure, 424 lbs; hard drawn copper, 896 lbs.; extra B. B. iron wire, 4,700 lbs. The tensile strengths per square inch are: Aluminum, 25,000 to 35,000 lbs.; hard drawn copper, 45,000 to 68,000 lbs.; and iron, 50,000 to 55,000 lbs.

For the same conductivity as copper, a diameter of about 27 per cent. greater is required for aluminum or a cross-sectional area of 64 per cent. The tensile strength on this basis would be about 63 per cent. of the copper, but the weight would be only 50 per cent. that of the copper.

The weight of a unit length of aluminum is about one-half that of copper wire of the same length and resistance. Hence it can compete with copper as long as the price per pound does not exceed twice that of copper.

For telephone work No. 12 B. & S. gage hard drawn copper wire is the smallest size wire which it is advisable to use and aluminum wire to have the same strength would have to be of about No. 10 B. & S. gage weighing about 48 pounds per mile. Thus the cost of aluminum would be considerably more than iron wire. The weight of 19.75 pounds which you give applies to No. 14 B. & S. gage aluminum wire and that of the iron wire to No. 12 B. W. G.

Aluminum is highly electro-positive to almost all other metals. Hence all joints must be carefully made and soldered so as to prevent electrolysis at such junctions.

Electrolysis of Cable Sheaths After Bonding.

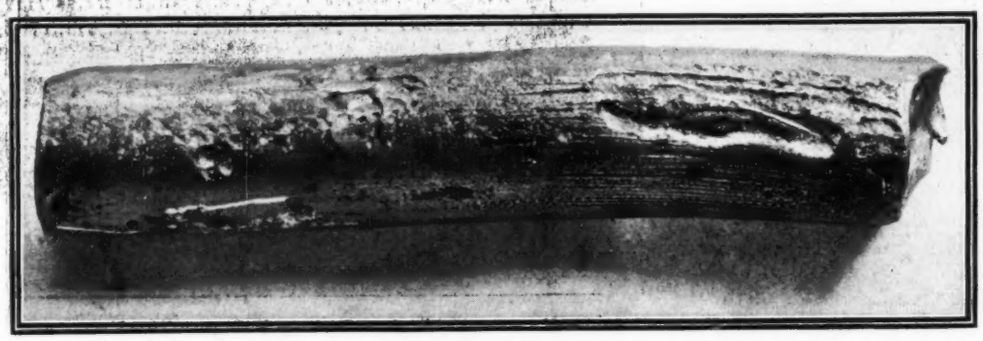
We are sending under a separate cover a sample of sheathing from 25 pair cable which was in use in our underground system less than two years. We should like to know if electrolysis should show up after a cable has been bonded.

Electrolysis can be prevented by careful bonding of cable. Frequent inspections and tests should be made, however, to determine the direction of the current flow in

the bonds as conditions change from time to time due to defective bonding of the rails and other causes.

The following article on electrolysis of cable sheaths by C. H. Clements, published recently in The Telephone Bulletin, discusses the cause of electrolysis and methods adopted for its control.

The underground cable plant of a telephone system has come to be a very important part of the telephone business and as any failure of a cable means an interruption to service, it is necessary at all times to guard against such failures. These failures may be caused by a great



Effect of Electrolysis on a 25-Pair Lead Covered Cable.

many things, such as internal burns due to heavy currents on conductors, or to mechanical injury as a workman digging into a cable. Failures of the above kind are usually known at the time they happen or very soon found out. There is however a chemical action which may be going on for a long time, day and night, before it is discovered. This action is called "Electrolytic Action," or "Electrolysis," and is caused by stray earth currents, usually from electric railways.

The electric railways use 500 to 600 volt direct current supplied to an overhead wire called the "trolley wire." This "trolley wire" is, in standard practice, connected to the positive (+) pole of the railway generator and the rails are connected to the negative (—) pole. The current leaves the power station at the positive (+) pole of the generator, goes over the trolley wire to the car, then down the trolley pole, through the car wiring and motors to the rails and back over them to the negative (—) pole of the generator, thus completing the electrical circuit.

The earth and rails are in contact in an infinite number of places, hence more or less current leaves the rails for the earth depending upon the resistances of the rails and earth from point in question to the power station. There are, however, conditions which must be fufilled in order for the current to leave the rails for the earth, which I will take up later.

The earth, when carrying heavy currents, such as used in railways, is found to have a relatively poor conductivity and the electrical energy dissipates itself throughout a large area adjacent to the track, and if it happens there are any pipes or cable sheaths in the immediate vicinity of the tracks which are of better conductivity that the earth, the current, taking the path of least resistance, will flow on the pipes or cable sheaths.

Hence we can easily see how, in a large city with a great network of underground pipes and cable sheaths, the current on the rails will be entering and leaving first one and then the other of these systems, always taking that path which offers the least resistance back to the power station.

The condition that must be met in order for the current to leave the rail and enter the earth is that the rail must be electro-positive to the earth while in order for an underground pipe or cable sheath to receive the current from the earth, it must be electro-negative to the earth. It is this condition on which the entire transfer of current from rails to cable or pipe depends.

When an electric current passes through a liquid, such as water, it decomposes the water and allows free hydrogen to be given off at the negative pole and free ozygen at the positive pole. In connection with underground cables this effect is very active in a chemical way, the oxygen uniting with the salts or acids of the earth and finally decomposing the metal at the positive pole, which in this case is a cable sheath. Pure water is a very poor conductor, but unfortunately, the earth very often contains acids or salts and hence the damp earth becomes a fairly good conductor, allowing the current to pass from rails to cable or pipe or vice versa as the conditions may present themselves.

The conditions being such as to allow the transfer or flow of the railway currents from the rails, all that is necessary for them to seek the cable sheath is that the path along the sheath present a low resistance, and that the sheath be electro-negative to earth. This does not necessarily mean that current can only come from the rails directly. In fact there may be no rails within many blocks of the cable sheath Perhaps, however, a water pipe has collected the current and is electro-positive to earth in the vicinity of the cables and the cables are electro-negative to earth, hence the current is coming, not directly from the rails, but by way of the water mains and flows along the sheath to a point where favorable conditions present themselves for it to leave the sheath.

It is at these points where the current leaves the sheath and oxygen is left in a free state that the danger exists The free oxygen attacks the lead and seems to take the life out of it in such a manner as to make it porous and spongy. This decomposition allows the water to soak in. causing cable failures as we all know.

The various metals used in underground systems are lead for cable sheaths and service pipes from water mains, cast iron and wrought iron pipe for gas and water mains, while brass is sometimes used for service pipes for water. The lead is most easily affected by the current leaving it, and theoretically one ampere of current will eat away approximately 74.3 pounds per year, wrought iron comes next and cast iron, especially those grades of cast iron having large amounts of carbon and silicon (sand), are very slightly affected.

While theoretically 74.3 pounds of lead would be eaten away in a year by one ampere leaving it in an electro-positive section, in practice it is probable this serious condition is nowhere near approached. In fact larger currents than one ampere may leave the sheath and only a slight decomposition of it take place. This is due undoubtedly to the fact that the passage of the current through the salts or acids, decomposes them in the vicinity of the lead sheath and the components enter into composition with the lead on the outside of the sheath, forming a chemical substance which is not affected by further current flow and the action on the lead sheath ceases.

As current in the return circuit of the railways will distribute itself over the rails, earth and underground systems, inversely in proportion to the resistance of the various paths offered, it is easily seen that poor bonding of trolley

tracks plays an important part in the amount of current that the rail carries, as well as the amount of current which is taking other paths back to the power station.

This principle is often taken advantage of by water, gas and telephone companies and insulating joints inserted in their system in order to increase the resistance of the path and reduce the amount of current on the mains or sheaths. However, even this is dangerous, as it often causes corrosion at the insulating joints, due to the currents leaving the pipe or sheath and entering the earth to avoid the high resistance of the insulating joint.

As the action is practically proportional to the current leakage, it is, therefore, important to keep the current flow on the sheaths as low as possible without introducing other factors to complicate the case. For this reason it is essential that no metallic connections exist between gas, water mains, cable sheaths and the returns of the trolley system, unless the current is leaving the particular system under consideration.

As previously stated, the cable sheath must be electropositive to earth in order for corrosion to take place, and it has been found that a very small potential difference is sufficient for the action. In fact some engineers claim that merely a directive potential, i. e., one that is almost too small to measure but whose direction can be determined, is sufficient to allow the corrosion to take place. While this is undoubtedly true, action on the cable sheath depends entirely on the amount of current flowing, which in turn depends entirely on the chemical composition of the surrounding soil.

The most trouble with the current leaving the cables or other underground systems, is usually experienced near the power stations where the current leaves the sheaths or pipes for the rails and thence returns to the negative pole of the machines. However this is not the only place it may leave one system for another, as shown above, but it is the point at which the heaviest currents are likely to be experienced due to proximity to the power station, which is the point all the current is seeking.

One protective measure often employed at this point is to make a metallic connection between the cables and negative bus bar of the power station. This eliminates the possibility of the current entering the ground as it will take the path of least resistance, which is the wire, and thus prevent the corrosion.

In fact the elimination or control of the electrolysis situation has become a very complicated proposition requiring continued attention and careful study. Frequent tests, at least two every year, must be made to determine dangerous sections. These tests must cover not only the telephone underground systems but all other systems, such as gas, water and electric light systems. Careful attention must be given the trolley system to determine where the current is coming from; the layout of the overhead return feeders must be taken into consideration; all metallic connections at bridges, at central offices and in manholes must be taken into consideration and finally plans formulated to eliminate either the cause or produce a remedy.

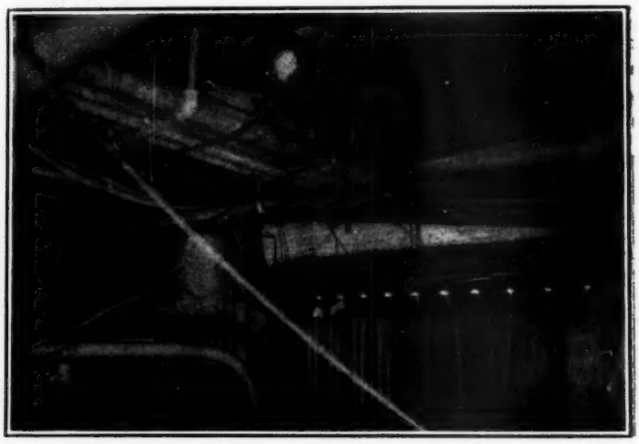


Fig. 1. A Riser Junction.

Having decided on the remedy, or eliminated the cause, and moved on to the next case, the engineer finds at his next tests that perchance the trolley has changed its negative returns, or the water company has installed a bond, thus entirely upsetting his previous work and causing him another complete study of the new conditions.

Cabling for Telephones in a Large Office Building.*

By Henry C. Meyer, Jr., and Bassett Jones, Jr.

A series of articles have been devoted to the history of the installation of the Prudential Insurance Buildings at Newark, N. J., and to various construction details. The present instalment gives a short account of the main distributing sys-

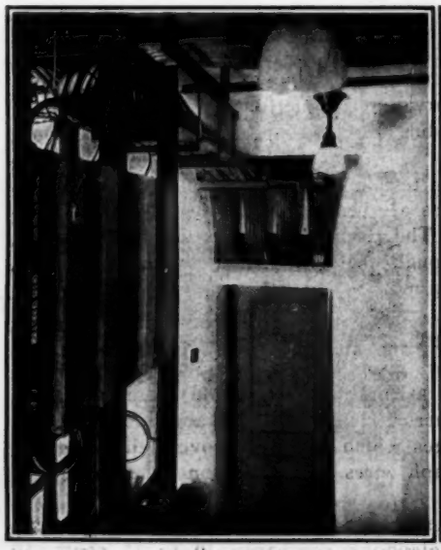


Fig. 2. Entry of Cables to Rack No. 1.

Fig. 3. Trunk Cables for Signal System.

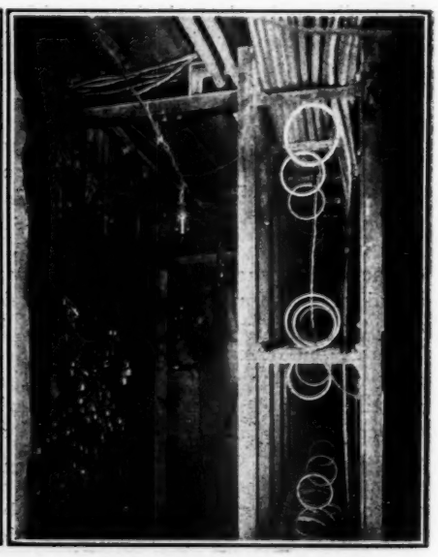


Fig. 4. Rack-Room No. 2.

*Reprinted through courtesy of the Electrical World.

tems for telephones and signaling, particularly the methods of carrying the trunk cables.

The main distributing system for telephones and signaling, or the low tension system, as it is designed on the work, is centralized at two points, one south of Bank street serving the Prudential Main and West Buildings, and one north of Bank street, serving the North Building, North Building additions and the Northwest Building. These two distributing centers, known respectively as rack No. 2 and rack No. 1, are tied together by trunk cables run through the main passage tunnel under Bank street. Riser cables are run from rack No. 1 through the subway system in the cellar of the North Building addition and up the riser shafts to the several main floor junctions.

The riser cables from rack No. 1 to the floor junctions in the North Building and Northwest Building are run through the cellars and tunnels overhead as convenience dictated and hung by special hangers, so that any one cable can be entirely removed without interfering with any other cable. These cables pass through junction boxes at the foot of the riser shaft, where they are joined to the riser cables proper. The junctions were necessary on account of the fact that the horizontal runs in the cellars were first installed and connected to the old riser cables, after which new shaft cables were pulled in and bridged over pair by pair from the old junctions to rack No. 1. It was therefore necessary to have a dividing point at the foot of each shaft.

In Fig. 1 is shown one of these riser junctions. The pull-box for the light and power cables running up the shaft may be seen at the left of the illustration.

A view of rack No. 1 is shown in Fig. 5. The rising cables to the North Building addition passing through the rack-room floor are also shown. The pipe nipples there shown extend only to the ceiling of the cellar space beneath the rack-room known as manhole No. 8, the cables being run along

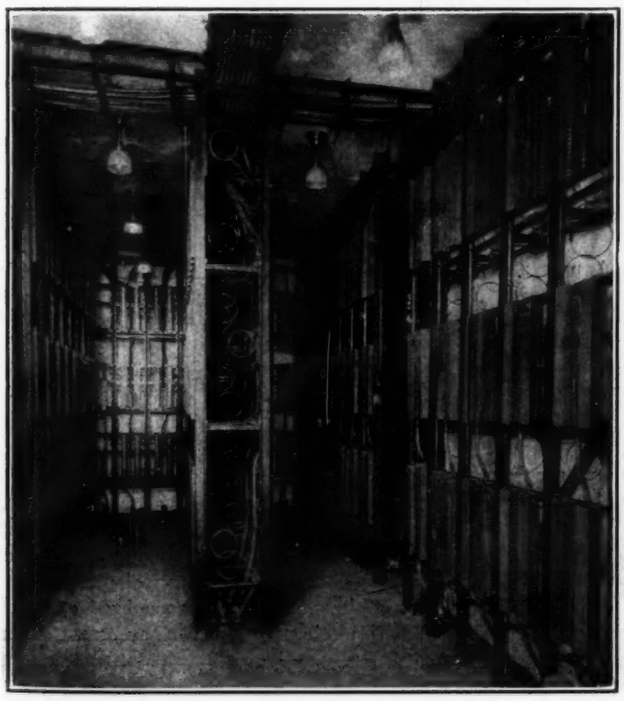


Fig. 5. Rack-Room No. 1.

this ceiling in long steel pans hung under the rack sections. These pans join at one end to a cross-pan which serves to carry the cables to a steel pull-box capping the end of the subway where it enters this manhole. This special arrangement was made to avoid the main elevator trunk pipes and other pipes passing through the manhole. A view illustrating the method of bringing the trunk cable and overhead cables into rack-room No. 1 is shown in Fig. 2.

The method of carrying the trunk cables in the Bank street

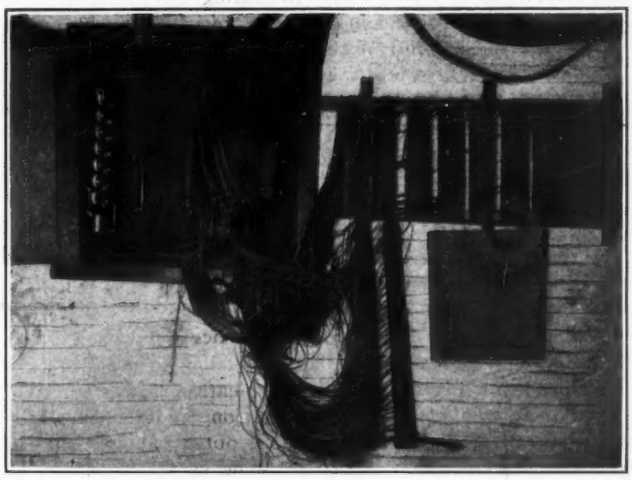


Fig. 6. Riser Junction. Transfer in Progress.

tunnel is shown in Fig. 3. A removable cover of metal surrounds the cables on all exposed routes, as shown.

A view of rack-room No. 2 is shown in Fig. 4. At the left may be seen part of the frame of the old main junction now superseded by rack No. 2, together with such of the old wires coming to this junction as had not been cut over onto rack No. 2 at the time the protograph was taken. This view illustrates the difficulties overcome in the course of reconstructing the old equipment. The rack was built gradually in sections as space could be made for it by pulling out the old material.

Fig. 6 shows one of the existing riser junctions in the old buildings during the process of reconstruction. Beside it is a temporary transfer junction fastened to the wall.

The main racks are divided into two separate sections for telephones, annunciators, etc., clocks, dismissal bells, battery service, fire alarms and watchman's time detectors. Separate rising cables and trunk cables for these several services are used, the rising cables for telephones and annunciators terminating in corresponding separate sections of the floor junctions. The street service telephone junction is in the cellar of the Prudential Building and is connected to the main racks by trunk cables.

Separate lines for testing and for portable telephones for use while connections are being made, connect the racks with all floor junctions. The rising clock cables and dismissal bell cables are run through separate smaller junctions on each floor, the bells being mounted on the junction covers.

Joint Handling of Telegraph Messages.

Authority has been given by the Nebraska Railway Commission to the Nebraska Telephone Co. to promulgate special rates to commercial telegraph companies for the joint handling of messages which go in part over telephone and in part over telegraph wires. The division of revenue is to be as follows:

Where regular telephone charge is less than 10 cents, 100 per cent to telephone company; 10 to 15 cents, 80 per cent. to telephone company and 20 per cent. to telegraph company; 20 to 25 cents, 70 and 30 per cent.; 30 cents or more, 60 and 40 per cent.

This class of messages is always to be handled by the telephone company as "deferred business"—that is they will not be handled until regular commercial messages are out of the way.

What Is It?

What Are We Driving At?—What Is The Use?

By J. C Kelsey

P. T. Barnum was the great showman. His success was based upon the theory that the people liked to be humbugged.

Only last week one of the wild men of Borneo died, immortalized in song and show-history. But Barnum had one mysterious animal which was unnamed. It excited the greatest curiosity. It was a "What is it."

So many people have asked so many times just what the so-called financial columns in TELEPHONY were trying to do—in other words, "What is it?"

Well, I am going back two and a half years when I was peacefully plowing in a small field, attending to my own business, and peacefully sleeping—as most human beings do.

The men who composed the National Independent Telephone Association were anxious for some action, hence I started these columns. For a while I had company, lots of it, too! One by one they fell by the wayside and have left me alone with the weekly bark.

And now, some of the once active ones have the nerve to ask me what I am driving at!

First of all, I am driving at an open field of purchase, to give Independent manufacturers the same right to bid on Bell needs as the Bell bids on Independent needs through the Western Electric Co.

Some men are so constituted that they believe brick-throwing a harmless pastime—until one gets hit on the head—then his whole ambition is to stop the dangerous pastime of throwing bricks.

A few converts have been added to my propaganda of an open sales field since the Cumberland and St. Louis Bell properties have passed into American Telephone ownership.

These two companies were in rebellion, and bought goods where they pleased. Hence a few tickled Independent manufacturers.

Today there is gloom among these same fellows, because the American Telephone has notified them that no future orders can be expected from Cumberland and St. Louis.

I am driving at many things. And on the following theory, too: A dark hole, once permanently penetrated by a beam of light, is no longer a good rat-hole. In other words, publicity is the beam of light which alone can correct evils.

Most people are afraid to do anything in this world! I know of men who would not give the government attorneys a single line of information, because it might hurt them!

Cowardice is our prevailing sin. As long as it exists be sure that great commercial evils will not be corrected.

Cowardice is not a prevailing trait of mine—it might be classed as fool-hardiness, but whatever it is, it matters not.

When I protested a few weeks ago about a company buying second-hand boards and raising rates at the same time I had the following injustice in my mind.

Four manufacturing companies spent $1,500 in bidding on a specification for a new switchboard at Lebanon, Ind. After all the time wasted—over a month—and the money, too, the operating company, the Indianapolis Telephone Co., decided on a second-hand board.

Does any one with common sense fail to see the consequences of a business which spends $1,500 on a wild-goose chase, or even if a $12,000 job was let for new work?

That is too much waste! No wonder the pathway of manufacturing has been at times a rocky path. Not all of it is the fault of the operator, since there has been some manufacturers' foolishness, too.

But my principal effort has been and will be to make it so plain to you—the necessity of opening the field or withdrawing the Bell from the sales field—that it will be done!

If the field were wide open, you would see Bell advertising in TELEPHONY, and you would see no further protest or lament from me. I would never say another hostile word against anyone.

I am fighting for the salvation of Independent telephone manufacturing. Not only Independent, but Bell as well.

The Western Electric Co. should clean up its closed shop monstrosity.

What is the use of doing business for the sole purpose of wrecking competitors, Mr. American Telephone?

That is their sole object in entering the Independent sales field—a glittering, chuckling hope of playing their last card and ruining the Independent manufacturer! Naturally, it has failed, although it has hurt.

When I first started in TELEPHONY, everyone thought the column would last a few weeks, burn low and go out, like a lamp. When it lasted a year, you were surprised. When it lasted two years, you were amazed at my long-windedness!

Let me tell you something. This column could last indefinitly if conditions favored it, and I could say some things which would surprise you. I have only touched the raw edges of things and affairs.

But I have a great many plain things to say to Independents. It is not nice to quarrel among ourselves—our Bell friends would chortle vigorously if we did.

But there is just one thing I want to make plain. Just one suggestion always gets me sore, and downright mad, too.

A man asked me if I had sold out to the Bell, because I was in favor of one telephone system—because I had favored Wood's and Gary's re-election, etc.

In the mind of most men, the Bell treasury consists of bags of gold, loosely laid around. And even the janitor can go in and help himself.

Anything imaginable can be sold to the Bell. Opinions, plant, property, ideas, patents and all can be sold to the Bell without negotiating beyond the janitor of the treasury

What a curious reputation the Bell company has—rich as Rockefeller, etc. No wonder it is hard for them to convince courts, councils and commissions that they are losing money.

Even the courts see in the mind's eye, those bags of gold carelessly piled in the Bell cellar at No. 15 Dey street.

Now let us get down to common sense. When a man favors a single telephone system, is that worth money to the Bell? You all know the kind of single telephone system I favor—one locally-owned, operated economically and buying its goods in the open field.

Why should I favor a single system which wipes out Independent competition and closes the avenue of sales to Independent manufacturers? If the Bell company cancels that

exclusive licensee contract, no Independent manufacturer could object.

I can't see why an Independent manufacturer can be expected to look after Independent welfare if they—the operators—do not return the favor.

A man said to me one day, "Well, I have cancelled my subscription to TELEPHONY—they have sold out to the Bell." I did not say anything. But I walked around quietly to his desk and found a Western Electric Co. invoice.

Here he was, buying telephones from the Bell factory, and quarreling with me because TELEPHONY had sold out What on earth do people expect?

TELEPHONY is still as Independent as ever—no one deserves more and has gotten less than the owners of TELEPHONY. But they should cease pulling chesnuts out of other peoples' fires!

Oh! It is a disagreeable topic. I hate to mention it, or reveal a single thought of hostility. But there is no use in denying it. I have pulled innumerable chestnuts out of the fire and have quit! I did hate to bring up that Postal matter, but I got tired of pulling Postal chestnuts out of the fire.

Everyone knows the Postal is a great concern, as far as it goes. Yet New York rumor says Postal would have readily come under American Telephone wings, if there had been a place for two directors instead of one!

The Mackey interests in the Postal are in hopeless minority—no merger was possible unless the majority Postal interest had a director, too.

But for a long while TELEPHONY was publishing Postal literature—so bitter too—without signature.

And TELEPHONY wisely concluded to publish nothing more unless it was signed by responsible parties!

Getting back to the Wood and Gary election incident—I have nothing to take back! Who is the judge of Independendents anyway? I have never found out!

Theodore Gary has always been a great telephone man. If he sees fit to put his territory in order, who dares to say he is not more Independent than ever?

Frank Woods has put his Nebraska territory in order—the Bell company has removed itself from a loss—sensible, too! And show me the man in America who would not do the same thing, if he got an advantageous bargain!

It is sensible for the Bell company to withdraw from numerous localities. It would be sensible to withdraw from Minneapolis, Grand Rapids, Kansas City, St. Louis and other large places.

Who can call the men, who have so manged their Independent properties that they made the withdrawal of the Bell company expedient, anything but Independent?

As far as I am concerned, I am going to follow my convictions! I have always said what I thought. That is an inheritance. My father and his fathers always claimed the right of saying what they thought, although at times they had to move—sometimes in a hurry.

I am not going to move an inch! I started this game of weekly stories and I am going to finish them when expediency demands.

I am going to continue throwing beams of light into ratholes until I make all of them uninhabitable—to rats!

Usually, what is everybody's business is nobody's business. so I am going to make it my business to run an X-ray photograph of the telephone business!

I have no quarrel with the American Telephone Co. and its ambitions. I have only a quarrel with their disposition to monopolize the sales field. And as long as they attempt that, I expect to make them just as much trouble as I can.

And I make them a great deal more trouble than you do, too—Mr. Kicker! I have been instrumental in causing them losses of millions, by reasons of rate reductions, etc. And that is a job I thoroughly dislike, too. Although as long as the present intolerable closed shop Bell idea exists I intend to continue.

It really makes me sorrowful rather than angry, for an Independent telephone man to ask if we have sold out. The Bell company today is a living refutation of the proverb "a fool and his money are soon parted." They seem to have money still!

Reason it out yourself. What good would it do if the Bell bought out everybody? Others would start out. But the Bell company needs all the help it can get to stem the tide. They need all of us in the humor of defending the telephone business as a whole.

I like the telephone business, and have the right to participate in it, not on a red-tape basis, but as a free-will agent. Once let the field of purchase open, and the Bell company would be surprised to find out how easy it is to get along.

With the field open, or put upon a fair basis, I for one would be one of the first followers in the general advancement of the telephone business.

TELEPHONY could carry Bell advertising.

It could enjoy the prosperity that its twelve years of uphill work entitles it to.

I may be saying something that TELEPHONY may not like. I do not pretend to control the policy of TELEPHONY—nor has TELEPHONY endeavored to control my column!

I am in Montreal as I write. I have a far-away look upon the telephone field. It does us all good to get away and look back upon our daily lives!

Whatever is said in this story is on my responsibility. I don't undertake to please everyone. I have not tried to. Any man who breaks into print long enough may be sure of offending every reader he has.

But I am sensitive about some criticism. I have been thrown out of every state association convention. My business associates and myself were put on trial as Bell men. They declared us guilty, although my company was on trial and finally came out Independent.

I am still plugging away for Independent telephone development, although many who controlled the conventions that declared me a Bell man have gone to the happy hunting ground.

I mean that my rabid friends have made connections with the Bell or have sold out! Such is life!

I noted one expression in the Montreal case, which was rather startling. The Bell company refers to the Independents who have toll line connections, as connected companies. The Bell expert from the states referred to these connected companies as "controlled companies." What did he really mean?

Does the Bell company control you simply because you let it put its toll lines on your board?

Really, it is alarming—but it is a queer conception of the "connecting" to call it "controlled."

There is not a better business in the world than our own telephone matter. But conditions are very peculiar to it.

The idea of one group trying to control everything is foolish in the first place. And the trouble made for them on account of such a policy is infinite!

Let us hope that there will be a greater desire for some consistency among ourselves. Do not criticize TELEPHONY unless you are free from Bell invoices. It is to your interest to compel an open field, Mr. Independent Man!

MORAL:—Let's conserve our energies!

Government Ownership of Telephones in Great Britain

Details Leading to the Purchase of the System of the National Telephone Co. by the State—Conditions Which Led to the Organization of the National Telephone Co.—Main Points in Agreements Between Government and Telephone Company—Price to Be Settled by Commission

By Our English Correspondent

The important arbitration to determine the price which the British government has to pay for the property of the National Telephone Co. began in London on June 10, and the hearing is likely to occupy a considerable time. The history of telephony in Great Britain has followed very much that of telegraphy, namely, the pioneer work being carried out by, and at the expense of, private individuals, with the state ultimately acquiring the whole business.

It was in 1877 that the first set of telephones was brought to Great Britain from America, and during the next three years, two companies were formed to furnish telephone service. In 1880, action was taken in the high courts by the government, with a view to establishing the contention that telephony was an infringement of the postmaster general's monopoly of telegraphic service, on the ground that telephony came within the legal definition of the word "telegraphy" for the purposes of the postmaster general's monopoly. This contention was upheld in favor of the government, and licenses were subsequently granted to telephone companies, on the basis of a royalty of 10 per cent. being paid on the gross receipts.

At that time, the two telephone companies previously referred to had consolidated under the title of the United Telephone Co., and the decision of the high courts was followed by a modification of the policy of granting licenses for particular districts, this change involving the granting of universal licenses; that is, a company with a telephone license could carry on its operations in any part of the country.

The result was that a large number of other telephone companies sprung up in different parts of the country between 1880 and 1889, with the very natural result that patent infringement actions followed each other, more or less frequently. The inevitable followed in the consolidation of one after another of these companies, and in 1895 the final amalgamation took place, leaving the National Telephone Co. in sole possession of the telephone service of Great Britain, with a license expiring on December 31, 1911.

The main conditions of the company's license were that it should not deal in written messages; that a royalty of 10 per cent. of the gross receipts should be paid; and that at the end of 1890, 1897 or 1904, the state could, by giving six months' notice, purchase the company's undertaking. Curiously enough, no provision was made in the license for the disposition of the company's property after December 31, 1911, and as the government failed to give notice of its intention to purchase at the periods named, a position of considerable interest, and even anxiety, on both sides was created after 1904.

As the position then stood, the National Telephone Co. was prevented from carrying on its business, and it soon became obvious that in the absence of a friendly agreement between the postmaster general and the company, the telephone business of the United Kingdom was liable to be brought to an absolute standstill. Consequently, in 1901 an agreement was drawn up under which the postmaster general was to purchase the London plant of the company on the expiration of its license, the purchase being based on what is known in Great Britain as "tramway terms," namely, that the price paid is only the value of the plant, without any payment in respect of compulsory purchase, good will, or past or future profits.

This agreement was followed in 1905 by a similar one in respect to the company's properties outside London, and it is the interpretation of these two agreements which is now about to occupy the attention of the courts. Since the signing of these agreements, all extensions of the telephone company have been carried out according to an agreed specification and to the satisfaction of the post office engineers.

In 1899, what is known as the Telegraph Act was passed by the government, under which local authorities were granted licenses to carry on telephone service within their areas. This, on the whole, was not a success, as only some half dozen local authorities ventured into the telephone business in competition with the National company, but the existence of these exchanges is a factor to be taken into account now. By the agreements for 1901 and 1905, the post office undertakes to buy all plants in non-competitive areas which were in use in those two years in London and the provinces respectively, and also those which were erected subsequently in accordance with an agreed specification.

In the competitive areas, which include London, Cardiff, Newcastle, Hull, Portsmouth and Brighton, the post office was not compelled to buy any plant which is "unsuitable," and any dispute as to whether it is suitable or not was to be submitted to arbitration. This preliminary point has already occupied some time at the hands of the Railway and Canal Commissioners, who are named in the agreement as the arbitration authority to deal with all matters in dispute. When this point first came up for consideration, the posmaster general objected to having to purchase a large amount of plant in the competitive areas on the ground that it was "unsuitable."

It appeared that some of the plant and lines objected to was quite modern and efficient, and suitable for service, but was not wanted because it duplicated existing plant or lines, and the Railway and Canal Commissioners were asked to decide whether the term "unsuitable" included what might be more accurately characterized as "redundant." The complaint was also made that the postmaster general had even widened his interpretation of what was "unsuitable" to include plant which would shortly be replaced by new plant when the London system was remodeled.

The commissioners' decision upon this point was in favor of the company by a majority of two to one, but it was reversed by the Court of Appeal. Then began what promised to be the most prolonged proceedings by the commissioners, in order to determine, in view of the court's decision, the amount of plant which was "suitable" for the purposes of the postmaster general in the competitive areas. After this had proceeded for two days, it was announced that an agreement had been reached which would put an end to this portion of the proceedings.

This agreement was to the effect that the postmaster general would take over the entire National Telephone Co.'s plant, including duplication in the competitive areas, and that the price would take into consideration the relative suitability of the plant for the requirements of the post office service under the new conditions.

One example may be given of the interesting points which would have arisen had the question of suitability been gone into, as would have been the case had the two parties not come to the agreement. The company has, in addition to its

ordinary telephone business, what is known as a "private wire" business, namely, communications between the various offices of firms in different parts. This private wire business is being taken over by the government on going concern terms. There are a number of cables containing among the various wires only one private wire. The company's contention was that the existence of this one private wire in a cable brought the whole within the category of "suitable" plant, owing to the difficulty of separation. The argument on the other side, however, was that such a cable should be declared "unsuitable," always with the reservation that the full price as a going concern would be paid for the private wire.

When this agreement was made it was not contemplated, as has proved to be the fact, that the purchase price would be agreed upon without further recourse to arbitration before the Railway and Canal Commissioners, and it is the work of determining this price which has just been commenced. It is anticipated that the price will be between $75,000,000 and $80,000,000. In addition to fixing this price for the plant, there are many incidental matters, including sixty or seventy compensation cases. It is anticipated that the case for the National Telephone Co. will occupy about a month, with the case for the postmaster general quite as long, if not longer.

After much discussion, it was finally decided that all the employes who had been with the National Telephone Co. since January 1, 1909, with the exception of some earning £700 per annum or more, should be taken into the post office service. Those with less than two years' service have been employed, subject to a satisfactory certificate being forthcoming.

School for Operators Held at Jackson, Michigan.

Another school for operators was conducted last week, at Jackson, Mich., by W. S. Vivian, secretary of the Michigan Independent Telephone & Traffic Assn., of Grand Rapids. Nine managers were present, eight chief operators and twenty-four operators. The meeting was a very successful one.

Two sessions were held, one in the morning and one in the afternoon. The visitors were entertained at the City Club for lunch and at the Y. M. C. A. for dinner.

Demonstrating boards, furnished by the Kellogg Switchboard & Supply Co., were used throughout the meetings, and the work of getting information from subscribers, recording the tickets, testing circuits, signalling, giving the tickets, and getting the parties on to the circuits; the work of the switching offices in connection with that, the various kinds of tickets, that is, "sent paid," "sent collect," "appointment," "messenger," etc., were thoroughly discussed.

Notwithstanding the fact that meetings were held in Jackson two years ago, there were only two operators present at this one who had ever been present at any of the meetings heretofore. This is an indication that the force changes rapidly, and shows that, if the work is to be handled systematically, it is necessary to get the operators together more often and give them better instruction, in order that the toll line business may be handled more economically and to better advantage both to the company and to the public.

The managers present were: J. P. Badour, Jackson; Phillip G. Pellegram, Bellevue; H. H. Taylor, Battle Creek; C. G. Fitzsimmons, Reading; J. F. Fitzsimmons, North Adams; R. C. Smith, Homer; Fred O'Brien, Marshal; B. O. Likens, Dist. Mgr. United States Telephone Co., Toledo, Ohio; J. E. Van Horn, Henrietta.

To Test Pioneer's "Zone" Rights in Oklahoma.

A general test of the legality of the action of the Pioneer Telephone Co. in establishing "zone rates" in Oklahoma is to be made by the corporation commission in the case filed by E. S. Lowther, of Guthrie, which has been set for hearing by the commission on July 9.

In Guthrie the company raises the rate for subscribers twenty-five cents per month for each quarter-mile beyond the first mile. That is the plan which is in vogue in all of its Oklahoma exchanges except Oklahoma City, Muskogee, Tulsa and Enid. In those four cities the extra charge is made for each half-mile beyond the first mile. The commission contends that the company has no right to make such distinctions and that it must give all patrons in the same city the same rate.

Practically the only large cities in the country where zone rates are in force are New York and Boston, and there is no other city in the country comparable in size with those in Oklahoma where they are used. The system is not employed even in Chicago or St. Louis, Kansas City, Denver, San Francisco, Dallas or Fort Worth.

Managers, Chief Operators and Operators Attending School Conducted by W. S. Vivian, at Jackson, Mich.

Receivers of National Corporation Report to Court

Men Managing Big Wheeling Corporation Under Instructions of United States District Court, Show Percentages of Security Holders and Creditors of Various Constituent Companies Which Favor Vercoe Proposition for Purchase.

The receivers of the United States Telephone Corporation, of Wheeling, W. Va., have made a report to Judge Dayton, in the United States district court, regarding the present situation of the concern and the attitude of the stockholders of the various constituent companies toward the proposition made some time ago by J. H. Vercoe.

In the report of the receivers, James W. Ewing and Arnold C. Scherr, they state that the proposition of Mr. Vercoe "representing undisclosed clients," was made May 13, 1912, and that it was submitted to the parties interested, with the result that the following proportions of assents were received:

NATIONAL TELEPHONE CO.

Of preferred stockholders	75.5%
Bondholders	85.7%
Creditors	92.0%

CONSOLIDATED TELEPHONE CO.

Stockholders	90%
Bondholders	80%
Creditors	84%

NATIONAL TELEPHONE CO. OF MONONGALIA COUNTY.

Stockholders	100%
Bondholders	45%
Creditors	100%

NATIONAL TELEPHONE CO. OF WEST VIRGINIA.

Bondholders	43%
Creditors	71%

There are only ten shares of stock outstanding. No assent has been given for these.

WEST VIRGINIA WESTERN TELEPHONE CO.

Stockholders	74%
Bondholders	93%
Creditors	90%

WESTON CENTRAL TELEPHONE CO.

Stockholders	75%

Creditors—Amount to $3,600.00; none have assented.

Bondholders—Amount to $6,000.00; none have assented.

THE UNION TELEPHONE CO.

Stockholders	100%

Note.—There are no creditors or bondholders.

THE WOODSFIELD TELEPHONE CO.

Stockholders	100%

There are no creditors or bondholders.

BEEGHLEY TELEPHONE CO.

There are no outside stockholders and there are no creditors or bondholders of this company, but all its stock being held by the corporation.

PITTSBURG & WHEELING TELEPHONE CO.

There are no outside stockholders, and there are no creditors or bondholders. All of the stock of this company is owned by the corporation and the Pittsburg & Allegheny Telephone Co.

NATIONAL TELEPHONE CO. OF OHIO.

Stockholders	75%
Bondholders	66%

Note.—The only other liabilities are the liabilities of the receivers.

NATIONAL TELEPHONE CO. OF PENNSYLVANIA.

Bondholders	30%

There is only a fraction of a share of the stock of this company not owned by the corporation, and this fraction has not assented.

THE CHARTIERS TELEPHONE CO.

All of the stock of this company is owned by the National Telephone Corporation and it has practicallly no debts and it has no bonds.

Discussing the matter still further and giving an indication of their approval of the plan, the receivers said:

Your receivers further report that it is their understanding and information that, as to the remaining companies the percentage of acceptances have been comparatively small, but their acceptances are not essential in the matter of carrying out the plan.

Your receivers further report that any purchaser of the assets of the National Telephone Corporation, in any proceeding of foreclosure, would thereby become merely a majority stockholder in the various subsidiary companies, and that, in order that such stock be given an actual or marketable value, the creditors and bondholders of the subsidiary companies must of necessity be satisfied.

Your receivers further respectfully report to the court that they have received some thirty-five letters from various banks and other parties in interest, urging your receivers to give their approval to the pending proposition for reorganization, which letters are filed as part of this report, and marked from one to thirty-five (1) to (35), both numbers inclusive.

Your receivers further respectfully report to the court that after mature consideration of the said Vercoe plan or poposition, and in view of the financial condition of the National Telephone Corporation, and many of its subsidiary companies, and especially of the fact that said plan has been accepted and approved by so many of those interested, and no other and better proposition has been submitted, your receivers are of the opinion that such proceedings ought to be had in this cause as will secure to the parties interested an opportunity to avail themselves of the proposition now pending as aforesaid.

The Vercoe proposition contemplates the purchase of the properties at various figures, based upon their present condition and earning capacity. This was submitted to the security holders for their approval or disapproval. Opposition to the proposed deal has been made by John A. Howard, on behalf of the holders of stocks and bonds, who declared in a public statement that it would result in loss to the investors. He urged that the latter wait until the settlement of the litigation now in the courts, when, he asserted, the full value of the securities might be had.

Sioux City Cannot Prevent Merger.

Sioux City will not be able to prevent the merging of the Sioux City and Iowa Telephone companies. This is the opinion of Mayor Smith. "There is nothing in the law or city ordinances," the mayor stated recently, "which gives the city authority to step in and stop the combining of the two exchanges."

The mayor said that while the city ordinance prohibits the Sioux City company from selling out to or purchasing another company, there is nothing to prohibit the Iowa company from going out of business. This, in effect, is what will be done, he understands. The telephone business in Sioux City is to be conducted by men at the head of the Sioux City company.

Strong Agitation in Des Moines for Independent.

The agitation for the organization of a mutual telephone company at Des Moines, Iowa, is assuming definite proportions. Henry Riegelman, who was one of the organizers of the former Mutual Independent Company, which sold to the Iowa Bell, is one of the promoters of the new plan, which contemplates the installation of automatic equipment. Since the merger complaints regarding both service and rates have been steadily coming to the city authorities. Mr. Riegelman is meeting with considerable enthusiasm among the business men of the city.

Cincinnati Bell May Issue Stock.

The Ohio Public Service Commission has granted the Cincinnati & Suburban Bell Telephone Company permission to issue $588,000 additional stock to finance the purchase of property for an exchange and for other purposes.

Practical Subjects—Letters and Discussions

A Peculiar Case of Trouble.

Last winter I was troubled, on several occasions in the early morning, by inability to ring a certain subscriber.

I made inquiry but found that although the party was in the room at the time, he was positive the bell had not rung. At all other times except early morning, the telephone worked all right. This aroused my curiosity and I racked my brain for an explanation.

At last I decided it must be due to the contraction of the metal in the switch hook caused by the cold weather. This I found to be the case. Of course, when, after the fire had been built, the telephone became warm, the switch hook contacts returned to their natural position.

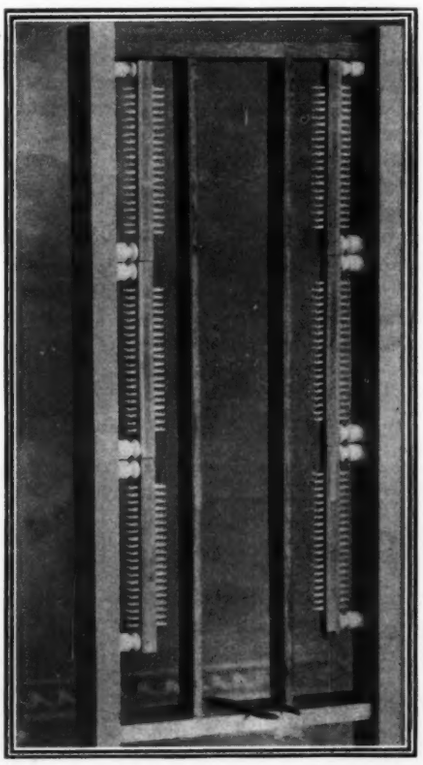
Clayton, Ill. F. L. Clark.

A Distributing Frame for Small Exchanges.

I enclose a photograph of a small exchange cross connecting rack that is in service in a village exchange which I installed last year.

The distributing frame or "criss cross" is adapted for small exchanges where the lines come in through 50-pair cable with protected terminals.

The material used for this particular rack consisted of 6 20-pair terminal strips; 2 60-pair fanning strips; 12 porcelain knobs; 30 R. H. screws; 2 pieces 1½ in. x 4 in. x 5 ft., smooth grain wood; and 2 pieces 1 in. x 4 in. x 18 in. tough wood. The cost of the material was less than $5.



An Easily Made Distributing Frame.

A coat of shellac on the wood parts adds to the appearance.

The lead cable was brought up at the rear, on the left side and the pot head wires fanned out, made up and soldered to the terminal in regular order, from pairs 1 and 2 to 49 and 50 with an extra pair used to bring in a trunk circuit from the county exchange, 12 miles distant.

The switchboard cables were brought in at the right side, fanned out, made up and soldered to terminals numbered consecutively from top to bottom, 60 numbers. Steel figures were used in stamping the numbers for both the cable terminal and switchboard sides. White lead was then rubbed into the numbers, making them easily read.

The extra nine pair of terminals on the left side are used to distribute local lines, such as booth and local telephones in the building which do not come through lead cable.

Bowdon, Ga. B. W. Little.

TO WIRE CHIEFS AND MAINTENANCE MEN.

Clearing of troubles which occur in your exchange, inside or outside, may be made the subject of short, practical letters which will interest other telephone men These TELEPHONY *will gladly publish, if illustrated by diagrams or photographs. Simply write a description of the nature of the trouble, tests and location, cause found, and method of repair. Payment will be made for all letters published.*

The Operators' Working Hours.

The method I use in handling operators as regards time and salary is as follows:

I cut the time into tricks, of so many hours each. At present I begin with 7:30 A. M. to 12:30, 5 hours; 12:30 to 5:30 P. M., 5 hours; 5:30 to 9 P. M., 3½ hours. I have the operators change around each week so that each has the night trick in turn. If any want to put in two tricks, they get double pay for the double time.

I think I pay as much as any exchange around here, namely about $18 per month, which is for ten hours' work and then in turn 8½ hours' work. I find that cheap operators do not pay, and favor the older, settled beyond the flirting, the man or boy struck age. Yet over half of my good, common sense girls have married. But they were old enough to do their sparking out of business hours, and off the lines. Young girls are cheaper, but they will keep a manager in hot water most of the time, trying to keep subscribers in good humor, etc.

Then again there are some little things that cost a little but they pay big profit, in more ways than one. People are not fools. If they see that you are stingy and pinch in little inexpensive things of your own, they will look for you to take a chunk out of them if you can, and they set you down for a cheap company, one to be watched. No company can get the help of a community, when it is stingy with its help, and in the little things.

Pennies make dollars; little things make up the company and the man; and judgment is passed accordingly.

Alden, N. Y. F. W. Swift.

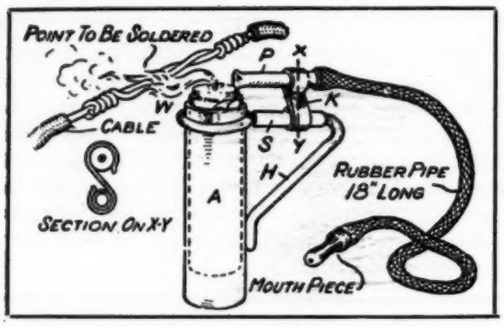
Emergency Torch for Electricians.

The following device, made at the expense of a few cents, will enable wiremen and others to solder all ordinary sized wires usually met with in practice and besides can be used for a variety of other purposes, says T. E. Heys in Popular Electricity.

An ordinary wax candle *A* is wrapped tightly with two or three thicknesses of what is known as builders' paper and fits snugly into an outer metallic tube. This latter is easily made from a sheet of tinware by lapping and soldering the edges. A piece of No. 6 copper wire *H* is soldered at top and bottom to the outer tube. A smooth brass tube *S* fits over the

wire tightly and is fastened to same. On this the clip *K*, though tightly set, will turn to right or left of the flame, or slide laterally as desired. The nozzle *P* is made from a two-inch piece of common clay pipe and has on its outer end a rubber pipe as shown in the illustration.

When in action the molten wax is held in place by the



A Simple Blow Torch for Soldering Purposes.

paper cartridge surrounding it, the presence of which and its quality having much to do with the efficiency of the torch. As these burn out they are fed upward through the hollow tube by pressure from below.

Short Circuit Inside of Telephone.

One of our common battery lines showed a swinging short during working hours but was usually clear before and after. As the line is entirely inside the office building, I decided that the trouble was in or near the telephone and located it in the three conductor cord between the subscriber's set and the desk stand. A closer examination showed that a pin had been pushed through the cord and cut off on both ends, leaving the piece inside, thus causing the trouble.

Detroit, Mich. H. J. S.

A Winding Machine for Ringer and Induction Coils.

Every telephone exchange has more or less winding and rewinding of ringer and induction coils and unless provided with some kind of a winding machine, it has very much of a job repairing the coils.

Where the coils must be rewound by hand, it generally costs the company more to rewind them than it would to buy new ones, not saying anything of the long, tiresome task of rewinding them. A very useful machine for winding may be made from an old generator. Either a three or a four bar generator with a laminated armature may be used for the purpose.

To make the armature, every other laminated piece is turned crosswise, and this, of course, divides the armature into four parts. Before changing the laminations, the armature should be put in a vise and, with a round file, slots cut in the ends on each side of the main shaft, so there will be plenty of space for the wire when it is wound on the armature.

A coil of wire should be wound around each part of the armature, and be sure to wind each of them in the same direction. You may use the wire of the primary winding of an old induction coil if some of them are available. Most exchanges that have been running for several years have old coils laying around.

In Fig. 1 of the illustrations, the arrangement of the pieces in the armature and other parts is shown.

The commutator is made of an old shunt from a generator. It is a round block of rubber with a brass band around it. The band, of course, is cut in four pieces and to each piece is soldered a wire from each winding of the armature.

Taking the small pin and rubber bushing out of the end of the armature shaft will give a place to bring out the four wires from the armature, through the shaft to the commutator.

The end of the armature shaft, where the coils are attached for winding, is bored and threaded for a screw. A screw is placed in the shaft and the coil to be wound is fastened on this screw.

Several screws may be made with different threads on one end so they will fit the different size holes of the various coils. By reference to Fig. 2 the arrangement of the binding posts on one end of the wooden base and a switch with several contacts on the other end may be seen.

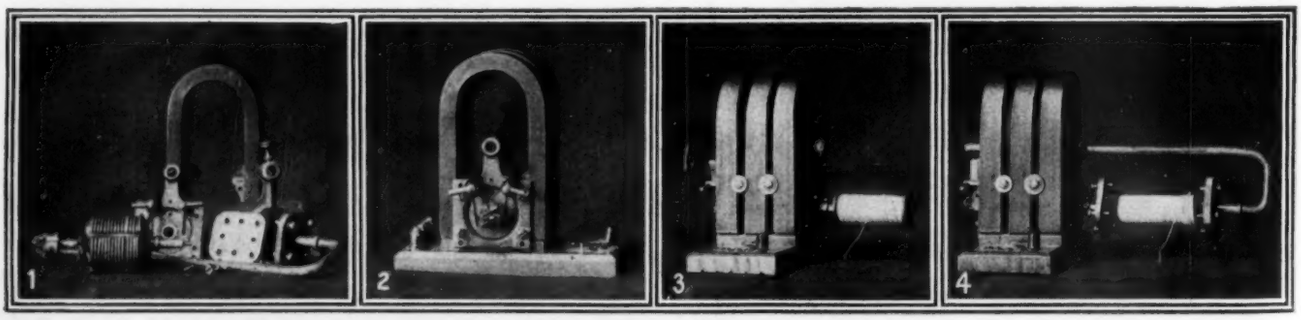
By connecting the batteries properly to the binding posts, it is possible, by shifting the switch to the different contacts, to switch on more or less battery according to the power required to pull the load. The arrangement of the brushes and the commutator is also shown in this view.

In Fig. 3 is shown a ringer coil attached for winding, and Fig. 4 shows an induction coil with attachments for holding it while winding.

For supporting the outer end of the coil, a rod is placed through the holes for the upper shaft of the generator and bent to fit, as shown in the illustration. A set screw placed in the bearing provided for the rod, will permit it to be adjusted according to the length of the coil.

The attachments for holding the ends of the coil, may be made of hard wood with screws placed at proper points to hold the square ends. A metal piece may also be used having rivets or screws for keeping the coil in position.

Of course the end next to the machine must be attached to the screw in the end of the armature shaft, while the other end must be so arranged that it will turn on the end of the rod.



Details and Appearance of a Home-Made Machine for Winding Ringer and Induction Coils.

It takes but little work to make the machine and it will certainly pay for the time expended many times, for it only takes but a few minutes to rewind a coil.

Four or six dry cells will run the machine very nicely.

Robinson, Ill. F. E. Drysdale.

Legal Cases and Decisions

By A. H. McMillan

Private Attachments to Telephone.

We have bought the patent rights to a device which may be attached to any telephone of standard make and which will increase its power of transmission to a great extent. The telephone companies in cities where we have sold this device have refused to allow the subscribers to attach it to the instrument, although it does not in any way interfere with the working of the system. Is there any law by which we can force them to permit the use of the attachment? The latter is sold to the user direct and the telephone company is put to no expense whatever.

We think this question will have to be answered upon the same principles as that of whether a subscriber may attach to the system of a telephone company apparatus for an interior telephone system. A company is not obliged to permit a subscriber to attach a private set of extension instruments and to allow him the use of its line unless the company is unprepared, or has neglected, to furnish approved appliances of that kind, or has demanded exorbitant rates therefor. Then, in case of such inability or failure on the part of the company to furnish such approved appliances, the subscriber could not demand the connection of his set with the company's line unless such connection would cause no detriment to the company in the demand it would make upon the company's service or in safety to the company's system, employes and subscribers. Gardner vs. Providence Telephone Co. (R. I.), 49 At., 1004.

Wires of Municipal Light Plant.

Kindly inform me what the law is in regard to a village installing an electric light plant of 110 volt direct current, in regard to setting poles and stringing wires.

Can I compel it to set poles on opposite sides of street from telephone poles? Can I compel it to place the wires so many feet above my telephone wires and, if so, how much above? I have a 25-year franchise which has about 15 years to run before it expires.

It is the duty of the village to take the same precautions against interference with the telephone wires that would be required on the part of a private electric light company. Between the electric light and telephone companies, the line rightfully in position is entitled to protection against interference by induction on the part of the one subsequently erected. For any damages caused by induction, the later established company is liable and the company injured is entitled also to an injunction to restrain the electric company from stringing its wires in proximity to those of the telephone company.

There are no decisions giving a telephone company the right to keep an electric light company from building upon the same side of the street. The question depends upon the circumstances of each particular case. Each company must exercise reasonable care. McMillan on Telephone Law, Sec. 135, Sec. 139. Nebraska Telephone Co. vs. Huron Gas & Electric Light Co., 27 Neb., 284.

Right of Member of Re-organized Rural Line.

Several rural residents contributed to the construction and maintenance of a rural telephone line. The association later dissolved and the line was divided into several shares. Later the owners of several of the shares re-organized and re-connected the line in such a manner as to leave one of the members without connection.

He applied for the connection and upon being refused, delayed for several months to secure redress by legal measures, but several times attempted to cut into the line and make his own connection. Then he brought suit to restrain the company from preventing his making his connection. His right to an injunction was denied.

The court held that the company was a voluntary association and not a partnership, and might be dissolved at the will of any of the associates at any time. His conduct in delaying for several months to secure redress in equity and trying to cut in upon the line was held to be illegal and wrong, so that the member did not come into equity with clean hands and was not entitled to relief. Primm vs. White, 142 South Western (Mo.) 802.

Effect of Strike Upon Duty to Transmit Message.

A suit was brought by a firm of wholesale grocers against the Western Union Telegraph Co. for delay in forwarding a telegram to the party addressed. The addressee had a direct telephone connection with one of the Western Union company's intermediate offices. The message could not be sent from this intermediate office by telegraph to its destination because of a strike of the operators located there. The message could have been telephoned directly to the addressee from Nashville, to which place it was transmitted by telegraph.

On the trial of the case, it was contended by the grocery company that it was the duty of the telegraph company to telephone the message from Nashville to its destination. The circuit judge charged that such was not the telegraph company's duty. By the Supreme Court of South Carolina, this was held to be error. The court said: "The message could have been telephoned directly to the addressee without in the slightest degree impairing the confidential relations assumed in undertaking the delivery."

The court should have left it to the jury to say whether, under the circumstances, due care and diligence in the transmission and delivery of the message required the defendant to forward it from Nashville to Clarksville by telephone.

The court further said the mere fact that the telegraph office was closed on account of the strike, did not excuse the delay. Before the company could avail itself of that defense, the burden was upon the defendant to prove that the strike was not brought about by its own fault or negligence and that it exercised due care and diligence to supply the place of the strikers. Mackorell Bros. vs. Western Union Telegraph Co., 73 South Eastern, 359.

No Contribution between Joint Wrong Doers.

Where a telephone company strung its wires too close to those of an electric light company, and the telephone wire sagged so that it came in contact with an uninsulated wire of the light company, and that company, though knowing of the danger, made no effort to correct it, both the light company and the telephone company were joint wrongdoers. This the Supreme Court of California holds to be the law in that state.

Judgment was obtained against both the telephone company and the electric light company, which was wholly satisfied by the electric light company. It then asked that execution be issued against the telephone company to enable it to compel the telephone company to pay half the judgment. This request was held to be rightfully denied because, as joint wrongdoers, there was no right of contribution between them. Dow vs. Pacific Telephone & Telegraph Co., 121 Pacific, 379.

Would Enjoin Bell in Denver.

With an injunction suit framed nominally to enjoin the Mountain States Telephone & Telegraph Co. from fulfilling its threat to cancel, July 1, all outstanding flat rate contracts, by which subscribers now receive unlimited telephone service for $120 a year, the Denver, Colo., Business Men's Association has begun its fight to force the public service corporation to conduct its operations under a city franchise.

The suit was brought by James H. Brown and Charles W. Franklin, as attorneys, for the John McDonough Security Co. and E. W. Merritt, a real estate broker, individually. Although the McDonough company and Merritt appear alone in the action, their complaint is so framed that 400 other parties may be joined as plaintiffs at any time.

The suit attacks the legality of the formation of the Mountain States company through the consolidation of the Colorado Telephone Co. with the then new Tri-State Telephone & Telegraph Co., July 17, 1911, under a state statute on corporations, which forbids the amalgamation of companies not of the same general character, organized to carry on the same general business in the same vicinity.

The association's complaint further charges that the Tri-State company, organized May 8, 1910, by E. B. Field, president of the then Colorado Telephone Co., his son, Edward B. Field, Jr., and J. E. McDonald and other officers and directors of the Colorado company, is a paper corporation, and that its organization was solely for the purpose of effecting another illegal organization in the Mountain States concern.

The plaintiffs to the suit assert that the telephone company, in an effort to induce subscribers to submit to the cancellation of their contracts, has "verbally argued, cajoled and threatened," and at present still threatens to cut off all service if its terms are not accepted by July 1. If these conditions are acceded to, McDonough and Merrit say, the cost of telephone service to those who submit will be something like three times as great as the present charge.

TELEPHONY TEN YEARS AGO

June 24, 25 and 26 the Independent Telephone Association held its sixth annual convention at Philadelphia. The sessions were held at the Hotel Walton and were presided over by James M. Thomas, president. Mayor Ashbridge welcomed the delegates, and the response was made by S. P. Sheerin, of Indianapolis. Papers were read at the convention by L. A. Goudy, of the Northeastern Telephone Co., Portland, Me.; C. H. Judson, Minneapolis; H. D. Critchfield, then of Cleveland; L. J. Hackney, Indianapolis; L. W. Stanton, then superintendent of the Federal Telephone Co., at Cleveland; C. E. Wells, Marion, Kansas.

Mr. Judson's paper quoted from a report made by Richard Valentine, president of the Wisconsin association, as to the strength of the Independents in that state, as follows: "Exchanges, 137; copper metallic toll lines, 200 miles; iron metallic toll lines, 3,000 miles; iron ground toll lines, 4,000 miles; toll stations, 650; telephones in use, 23,000; invested capital, $2,136,875. Mrs. Annie McElroy Brett, who financed and built the Independent exchange at El Paso, Texas, also addressed the convention.

The 1902 convention elected the following officers of the association for the ensuing year: President, James M. Thomas, Cleveland; vice-president, Hugh M. Dougherty, Bluffton, Ind.; C. E. Stinson, Rochester, N. Y.; W. H. Durin, Cedar Rapids, Ia.; secretary and treasurer, J. B. Ware, Detroit; assistant secretaries, C. E. Wilson, Philadelphia; E. L. Barber, Wauseon, O.; T. B. Lee, Pittsburgh; Advisory board, James M. Thomas, Cleveland; P. Sheerin, Indianapolis; H. D. Critchfield, Cleveland; E. B. Fisher, Grand Rapids, Mich.; S. E. Wayland, Scranton, Pa.; H. C. Young, Columbia, Pa.; E. E. Webster, Minneapolis: Executive committee, Illinois, George Fair; Indiana, George F. Frier; Iowa, Dr. H. S. Herr; Kentucky, J. A. Armstrong; Louisiana, L. H. Lancaster; Michigan, R. F. Johnson; Maine, L. W. Goudy; New Jersey, John J. Burleigh; New York, C. L. Ingham; Ohio, Frank L. Beam; Pennsylvania, C. W. Kline; Minnesota, E. E. Webster; Texas, Mrs. A. E. Brett; Virginia, N. C. Watts; West Virginia, W. K. Cummings; Wisconsin, Richard Valentine; Kansas, C. E. Wells.

In the June, 1902, issue of TELEPHONY, J. C. Kelsey, then professor of the telephone department of Purdue University, published a paper on "Telephone Engineering." Even in those days Mr. Kelsey—now sales manager of the Kellogg Switchboard & Supply Co. and a weekly contributor to TELEPHONY—was "harping" on depreciation, and pointed out the need of an army of trained men to care for the $500,000,000 represented in the telephone industry.

United States Consul General Gowdy, stationed at Paris, reported to Washington a description of the "microphonograph," a telephone for the deaf. The instrument was described as a combination of the microphone and the phonograph and was invented by M. Dussaud, professor of physics in the Ecole de Mecanique, Geneva, Switzerland. Afterward it was perfected by M. Berthon, then manager of the Industrial Telephone Society, of Paris.

The Telephone Manufacturers' Association promulgated its articles of association and announced the election of the following officers: President, A. Stromberg; first vice-president, K. B. Miller; secretary, J. E. Keelyn; treasurer, V. H. Messenger; directors, F. G. Jones, E. B. Overshiner, Arthur Stein, C. W. Farr, C. E. North, L. G. Bowman, H. E. Brocunier, H. H. Hipwell, J. E. Keelyn.

Wisconsin Independents held their 1902 convention at Waupaca, June 25, 26 and 27, in conjunction with the meeting of the Northwestern Electrical Association. Richard Valentine, president, was in the chair.

Minnesota Independents organized and elected the following officers: President, Dr. J. H. James, Mankato; vice-presidents, James A. Tawney, Winona; J. J. Greaves, Glencoe; E. L. Bradley, Duluth; secretary, W. H. Mears, West Concord; treasurer, Joseph Lockey, St. Paul; executive committee, Dr. J. H. James, James A. Tawney, J. J. Greaves, E. L. Bradley, W. H. Mears, E. E. Webster, E. H. Moulton and C. H. Judson, of the Twin City Telephone Co.; F. M. Buck and J. W. Lockey, St. Paul; H. A. Patterson, Mankato; C. C. Vintzer, Duluth; W. S. Clay, Hutchinson; C. J. Smallwood.

Southern New England Telephone Co., working under a franchise granted by the city of Bridgeport, Conn., placed in operation the first street telephone.

Among the June items in the 1902 TELEPHONY is found the following interesting bit of reminiscence: "Professor Alexander Graham Bell offered a tenth interest in his telephone invention to an examiner in the patent office for $100 cash. It was refused. That tenth interest was worth $1,600,000 in fifteen years. The giant intellect that refused it is still examining patents."

From the Patent Office

By Max W. Zabel

Selective Telephone System.

Wm. F. Marten, Oakland, Cal., 1,029,504, June 11, 1912.

In this step-by-step system, selector coils are connected between one of the line wires and ground and releasing coils placed between the other line wire and ground. Signal connecting coils are arranged between the two line wires. A selector wheel having notches corresponding to the respective stations is under the control of the coils. An interrupter wheel is also provided having a contact for intermittently closing a circuit through the selector coils.

Receiver Shell.

J. F. Barbour, Elyria, Ohio, 1,029,524, June 11, 1912; assigned to Dean Electric Co., Elyria.

The receiver shell is provided with a bayonet slot which is adapted to be engaged by a pin carried by the ear piece, thus to associate the parts together without the need of a screw thread.

Receiver Holding Attachment.

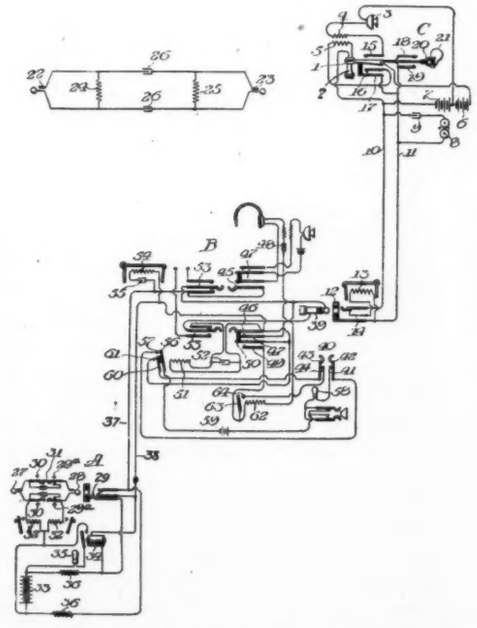
T. I. Ludwig, Sandusky, Ohio, 1,028,370, June 4, 1912.

This patent covers a device adapted for attachment to a desk telephone for the purpose of holding the receiver when in use. Instrumentalities are provided with the holding device whereby the switchhook is operated when the receiver is in position.

Telephone System.

O. M. Leich, Genoa, Ill., 1,027,485, May 28, 1912; assigned to Cracraft, Leich Electric Co., Genoa.

Signaling and trunk features between a common battery and local battery exchange are disclosed in this patent. Means are provided at the substation in connection with the switchhook 1 whereby the batteries 6 and 7 are selectively

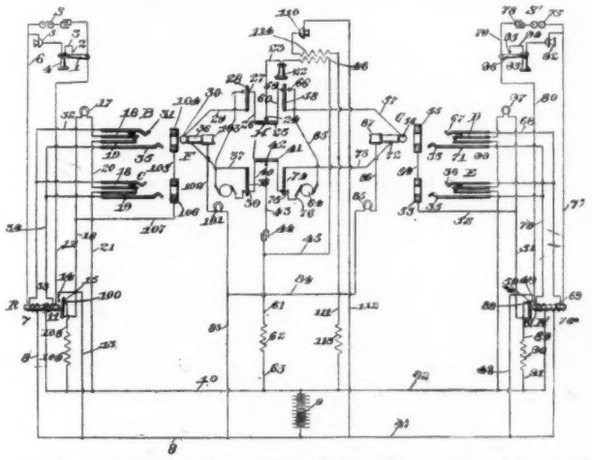


connected into the circuit, to operate either the line drop 13 or the clearing out drop 25, should the local cord circuit be used. If the trunk circuit, however, is used, insertion of the plug 39 when the receiver 2 at substation *C* is removed, causes actuation of the line relay 34 to directly display the signal 35 in front of the operator at the common battery exchange *A*. Replacement of the receiver 2 actuates the clearing out signal 32 at the common battery exchange directly over the trunk circuit.

Telephone System.

D. L. Temple, Lewistown, Pa., patent 1,028,635, June 4, 1912; assigned to Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y.

In this common battery telephone system, the line signal 17 has its circuit mechanically broken at the jacks by the



separation of the springs 18 and 19 whenever a plug is inserted. The line relay *R* not only controls this line signal 17 but also the clearing out signal 101. This clearing out signal is connected from the battery 9, through the third contact of the plug 10, the thimble 106 of the jack, and the armature 100 of the relay *R*. Other special features will be readily apparent. The arrangement, it is claimed, eliminates relays in the cord circuit.

Telephone Receiver.

S. G. McMeen, San Francisco, Cal., 1,027,494, May 28, 1912; assigned to McMeen & Miller, Chicago, Ill.

A telephone receiver is described in which the shell is provided with a rear cap that can be removed for the purpose of inserting and withdrawing a condenser. A cup in the large end carries an energizing field coil for the receiver magnet and another cup immediately below the diaphragm contains the speech current transmitting coil with which the condenser is designed to be connected serially.

Telephone Exchange System.

E. E. Clement, Washington, D. C., 1,029,577, June 11, 1912.

This invention comprises special circuits at the central office, and special transmitting means at the substations, whereby in case of fire or robbery or the like at the substation, the lamp on the switchboard at central will flash in a characteristic manner. This is a signal for the operator to immediately plug the line to the fire or police headquarters, where it will be received on a proper receiving apparatus such as a Morse register, giving the exact location of the house or building in which the trouble exists.

Signaling System.

H. O. Rugh, Sandwich, Ill., 1,028,790, June 4, 1912; assigned to Sandwich Electric Co.

A call box for a step-by-step signaling system for railway

systems is described, having special controlling features. Three circuit controlling springs are provided, the central spring of which is adapted to make contact with either of the others. The central spring carries a frictional element having frictional engagements with a setting element. It is so arranged that when the setting element moves in one direction of rotation, contact is established with one spring, and when it rotates in the opposite direction, circuit is established with the other spring.

London Soon to Telephone to Berlin.

A London, Eng., dispatch says that the Right Hon. Herbert L. Samuel, postmaster general, in submitting the Post Office budget in the house of commons recently, said the proposed 50 per cent. reduction in telephone charges between England and France had not been effected because the new cables had not yet been connected by land lines to Paris. He said steps were being taken to extend telephonic communication with the continent, within a short time.

From Factory and Salesroom

Convention: Mississippi Independent Telephone Association, Meridian, June 25

American Electric Company's New Salesmen.

Recent additions to the sales force of the American Electric Co. have been announced as follows:

R. E. Brown, who is known in the operating field, having been more recently manager of one of the large Independent telephone systems in northwestern Illinois and who, with his practical telephone operating experience, will prove an exceedingly useful representative for that company.

Edwin Molley, who will travel Wisconsin, is a newcomer in the telephone field, but will rapidly make friends and bring business to this company.

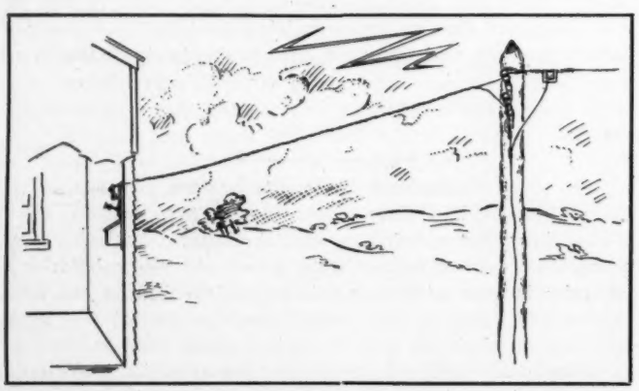
A. B. Ferdinand, an old-timer in the business, with a large acquaintance among operating telephone men, has been back with the "American" company for several months, which is good news to his friends.

The above additions to the regular sales force of the American Electric Company show its aggressive policy in the field, which is bringing to the company such a large share of the business and has necessitated the operating of the plant on overtime now for many months.

The Line Wire Lightning Arrester.

One might suppose that there are enough different kinds of lightning arresters on the market to fill every need, but a new type of arrester recently placed on the market has some features which are commanding attention. Its merit seems to lie principally in its extreme simplicity and freedom from possible trouble.

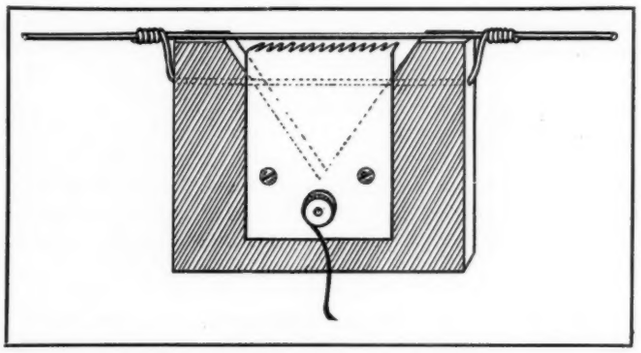
A glance at the illustration shows plainer than words



An Installation of the Line Wire Lightning Arrester.

how it is installed. It is tied to the line with a piece of wire in exactly the same manner as tying a line to an insulator. With this done, all that remains is to connect a ground wire under the binding post and the work is finished.

The arrester will appeal to every man having to do with rural lines as it is said to be the cheapest, most practical way of stopping the lightning out of doors. The copper plate is covered with an insulating solution to prevent



The Line Wire Lightning Arrester.

leakage in wet weather. This arrester is manufactured by the Electric Specialty Mfg. Co. of Cedar Rapids, Iowa, which will gladly send additional information upon request.

Paragraphs.

Crouse-Hinds Co., Syracuse, N. Y., is distributing a booklet entitled "Get Home from Third," to its friends in the electrical trade. The booklet, which is illustrated and printed in two colors, contains an intensely interesting and forceful description of the winning of a baseball game. Readers of Telephony who desire a copy of this complimentary booklet can secure one by writing to the Crouse-Hinds Co.

The Specialty Device Co. of Cincinnati, has issued a folder presenting facts about the "Beirce Anchor—the anchor to tie to." It is stated that the anchor works on the principle of a wedge, the greater the strain, the tighter it holds and that it will not creep. A quotation from a report of a test made at Cornell University, says "the rod will break before the anchor can be pulled up." Directions are given for installing the anchor and illustrations showing the methods used, are presented. A very strong testimonial letter is also included.

The Diamond Expansion Bolt Co., New York, has sent to dealers, an attractive advertising hanger which is sure to draw attention to this well known expansion bolt. It is of a convenient size, 6½ in. x 9½ in. A blue diamond, raised above the gilded background, carries a life like reproduction of a Diamond expansion bolt, which well illustrates the expansion qualities of the shield when the bolt is in the final holding position. Across the top of the hanger are the words "Holds Fast in Brick, in Concrete and Stone." In one of the lower corners is shown a screw anchor and in the other corner a drill for making the holes in brick and concrete. The hanger presents a pleasing appearance and should be an effective aid in boosting the Diamond products.

The Kellogg Salesman in New York State.

Early in the present month, Harry B. Dudley of the installing department of the Kellogg Switchboard & Supply Co. took up the active work of sales representative in New York state, with headquarters at Albany.

Harry B. Dudley.

Mr. Dudley is another live telephone man from the South, who entered the business because he became interested in the telephone work of his home town.

It was at Flemingsburg, Kentucky, that Mr. Dudley first commenced to ask "telephone questions," and began to understand the importance of the Independent telephone movement.

He started in the shop and has had practical experience in every department, this work covering over six years.

As installer, his work extended over three years, and included many types and sizes of exchanges. In a number of plants, he has installed the job alone, from delivery to the cut over. The list of plants at which he has assisted includes such exchanges as La Crosse, Wisconsin; St. Louis, Cape Girardeau, Mo., and Cleveland, Ohio.

Telephone men in his territory will find Mr. Dudley a practical salesman as well as installer.

A. D. Boal, who has made many friends for the company during his brief stay in New York, has returned to Chicago to again take up his work in the correspondence department.

The Stromberg-Carlson's Latest Advertising Aids.

The advertising service of the Stromberg-Carlson Telephone Mfg. Co., of Rochester, N. Y., to Independent telephone exchange companies and electrical dealers has always been well received. The company has planned a direct-by-mail advertising service for these companies which it wishes to push the sale of its Inter-'Comm-Phones and private line telephones.

For this purpose six mailing circulars have been prepared, each with a different human interest appeal to the prospective user of a private telephone system. They contain a good advertisement and at the same time are short and condensed. The circulars can be mailed out for one cent and by tearing off the addressed portion of the circular, it only requires to be put in the mail box to bring the company offering the service, to the customer, as the reverse side of the card is arranged to be imprinted with the name of the concern which sends them out to the trade.

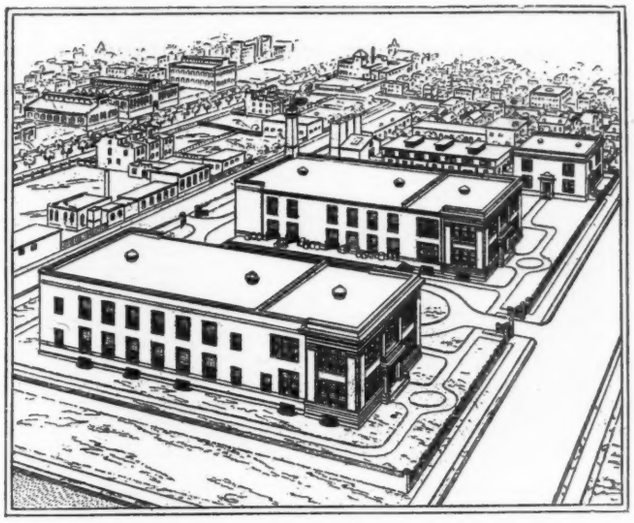
The circulars are made to fold in three parts, a small flap coming at the front and only partially covering the other fold. The illustration shows the attractive and catchy appearance of the cards. The other sides of the folders contain convincing arguments for private telephone systems, which should lead to investigation by those who receive the literature.

The Stromberg-Carlson company will furnish these folders, imprinted with the name of the telephone company or electrical dealer, free of charge. The only investment which will be necessary is the postage to mail them out. It is a co-operative advertising plan and should be well received by the trade.

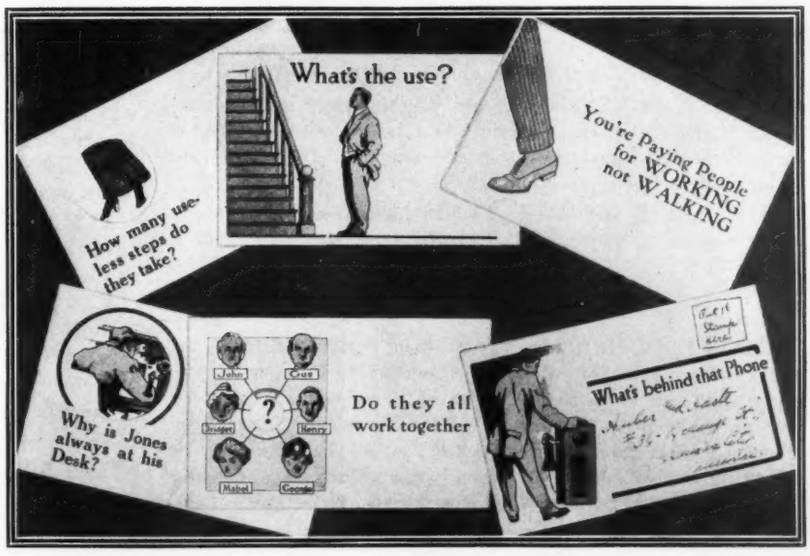
Dielectric Products.

The Dielectric Mfg. Co., of St. Louis, which makes a specialty of insulating materials, has moved into its new factory. The new factory in which all of the Dielectric products will be made adds 15,000 square feet of floor space to the plant.

Dielectric products have been used by electrical manufacturers for twelve years and go into a very large percentage of the electrical machinery manufactured in this country. These products are largely the invention of Dr. J. J. Kessler, president and manager of the company, who is an expert chemist with long training in the electrical field. The line includes battery paints and compounds, Phenoleum wood preservative, concrete finishes, machinery finishes, soldering fluxes, metal lacquers and high grade paints and varnishes.



The Factory of the Dielectric Manufacturing Company.



Some Stromberg-Carlson Advertising Aids for Telephone Companies.

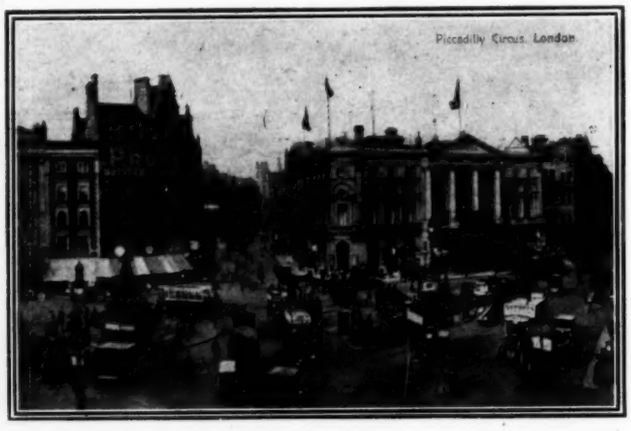
The company reports that novel improvements have been made in the soldering flux manufactured by it for the past ten years. After exhaustive tests had been made it has satisfied itself, and the telephone men to whom this product has been presented, that it is remarkably efficient and can be sold at a very low cost. A handsomely illustrated catalogue will be sent to those requesting it.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued, and Any Items of Interest as to Their Plants and Systems

Personal.

FRANK W. PARDEE, vice-president and general manager of the Ericcson Mfg. Co., Buffalo, N. Y., has done many notable things in his time, but none more notable than making Picadilly



Frank Pardee Visited Picadilly Circus, London.

Circus, London, more famous by his presence there recently. The accompanying photograph of that already well known spot in the great English metropolis, sent us by Mr. Pardee, does not indicate that he created any unusual disturbance there, but the picture may have been taken before his visit.

Mr. Pardee, as TELEPHONY announced some weeks ago, is taking a trip through Europe, largely on matters of business, although pleasure will undoubtedly creep in here and there. He writes us, under date of June 3: "Having a great trip. Expect to go to Paris, Berlin and Stockholm. Home about July 1. Regards to all." TELEPHONY surely hopes he will have a "great trip" and that it will be profitable in every way.

ELSWORTH KEITH, manager of the supply sales department of the Automatic Electric Co., Chicago, was married, on June 1, to Miss Maude Lewis Puetz, daughter of Mr. and Mrs. John Carlyle Puetz, of Hinsdale, Ill.

E. C. BATES and W. B. BATES have applied to the city council of Alto, Texas, for a franchise for the Alto Light & Power Co. E. C. Bates is manager of the Farmers Union Telephone Co., of Alto, while W. B. Bates is from Port Arthur, Texas.

CHARLES A. BERG has assumed the duties of manager of the Tri-State Telephone Co. in the Connelsville, Pa., district. Mr. Berg was general manager of the old Tri-State company for five years, prior to the coming of the American Union Telephone Co. He was manager of the People's Telephone Co. at Morgantown, W. Va., for several years and more recently has been in the right-of-way department of the West Penn Railways Co.

New Companies.

COLFAX, CAL.—The Colfax Suburban Telephone Co., capitalized at $2,000, has been incorporated here by E. Franklin, H. F. Holmshaw, H. C. Gordon and others, all of Colfax.

CHICAGO, ILL.—The Illinois Telephone & Telegraph Co. has been incorporated, with a nominal capital stock of $5,000. The incorporators are S. W. Tracy, J. W. Callahan and M. B. Augur. The formation of this company is a part of the reorganization of the Illinois Tunnel Co., full details of which will be published soon.

ELIZABETHTOWN, ILL.—The Elizabethtown Mutual Telephone Co., with $2,000 capital, has been incorporated here by R. H. Willingham, Wiley Lavender and Abram Lawrence .

ABILENE, KANS.—The Kansas Central Telephone Co. has been incorporated by C. L. Brown, Abilene; A. T. Rodgers, Beloit; O. T. Kimmel, Plainville; J. O. Wilson, Salina; F. L. Gillman, Kansas City; D. A. Van Trine, Salina; and E. B. Gemmill, Abilene. The capital stock is fixed at $100,000.

BECKTON, KY.—The Beckton Telephone Co. has been incorporated here, with a capital stock of $500. The incorporators are Ed. Redford, Morgan Gillock and George Lewis, all of Glasgow.

SITKA, KY.—The Winefred Paintsville Telephone Co., capitalized at $300, has been incorporated by J. H. Stambeaugh and U. G. Picklesimer, of Sitka; J. B. Salyers and Lafayette Sparks, of Winefred; and W. F. Stambeaugh, of Stambeaugh.

SACRED HEART, MINN.—G. P. Mangerud, of Sacred Heart, is reported as the attorney for the Rock Valley Telephone Co., with headquarters at Sioux Agency, Yellow Medicine county. The incorporators are: F. W. Chapman, A. O. Anderson and P. O. Kollin, of Sioux Agensy, and Oscar Gryting, of Redwood. Neither Sioux Agency nor Redwood are postoffices.

CARSON CITY, NEV.—The Ruby Telephone Co., with $100,000 capital, has filed articles of incorporation here. The incorporators are given as Wm. R. Gerstle, Louis Greenbaum, Wm. Fairbanks and Stewart Menzies, all of San Francisco, Cal. Lloyd S. Ackerman, Union Trust Bldg., San Francisco, is named as the attorney.

Construction.

GARDNER, KANS.—The Johnson County Telephone Co. has announced that it will build a new exchange and warehouse building in Edgerton. A new switchboard will be purchased and the plant bettered in other ways.

LIBERAL, KANS.—The Liberal Telephone Co. is to shortly construct a line from Liberal to Plains.

ALMA, MICH.—The Union Telephone Co. will shortly advertise for bids for a new exchange building to be erected at Owosso.

RAVENNA, MICH.—The Citizens' Telephone Co. has bought a building here and will transfer the exchange to it some time in July. A new switchboard will be installed and other improvements made to the system.

SILVER LAKE, MINN.—A telephone exchange is to be installed here within the next few months. Further details are not given.

ASHEVILLE, N. C.—The Asheville Telephone Co. contemplates various extensions and improvements. It proposes to build a direct circuit to Lake Toxaway from Asheville, extend the present line to Tocane to Unaca Springs, install toll switchboard, etc.

JOHNSTOWN, PA.—The Johnstown Telephone Co. has decided to extend its lines to Mineral Point, Vinco, Park Hill, Echo and other nearby points, and to replace its magneto plant at Conemaugh with common battery. The districts named will be served from the Conemaugh exchange.

McKINNEY, TEXAS.—The Union Telephone Co. is ready for the construction of a long distance line between

McKinney and Greenville. It will also build a line from McKinney to Pilot Point and Denton. It will connect with the local exchange of the Home Telephone Co., at McKinney. C. A. Shock is president.

MONROE, WIS.—The United Telephone Company has purchased real estate on which it will build this summer a two-story exchange and office building.

Financial.

FLANAGAN, ILL.—The Flanagan Telephone Co. has increased its capital stock from $1,400 to $2,000.

YEAMAN, KY.—The Yeaman Mutual Telephone Co. has increased its capital stock from $1,000 to $2,000.

NEW KNOXVILLE, OHIO.—The New Knoxville Telephone Co. has reduced its capital stock from $8,750 to $7,500 by reducing the par value of the shares from $35 to $30.

BRYAN, TEXAS.—The Bryan Telephone Co. has increased its capital stock from $14,000 to $28,000.

Franchises.

PORTAGE, PA.—The city council has granted a twenty-five year franchise to the Johnstown Telephone Co. A large number of subscribers have already signed contracts.

Elections.

PHOENIX, ARIZ.—The annual meeting of stockholders of the Overland Telephone & Telegraph Co. resulted in the election of the following directors: John A. Lentz, A. C. Webb, J. W. Weatherford, Redmond Toohey, D. J. Shea, I. J. Johnson, H. T. Andrews, W. H. Burbage, K. S. Townsend, P. T. Hurley, C. H. Pratt.

CROOK, COL.—At the annual meeting of the Crook Telephone Co. the following officers were elected: President, H. L. Greaves; vice-president, Dan Shea; secretary and treasurer, Dr. G. W. Barrett.

HARVARD, ILL.—The annual meeting of the Harvard Telephone Co. was held recently, officers being re-elected as follows: President, H. D. Crumb; vice-president, R. P. Phalen; secretary and treasurer, F. F. Axtell.

SANDWICH, ILL.—At the annual meeting of the stockholders of the Northern Illinois Telephone Co., held recently, the former board of directors was re-elected as follows: F. S. Mosher, J. N. Antoine, C. F. Sedgwick, Wm. VonOhlen, George H. Hicks, S. D. Newton, Justin Latham, E. A. Manchester and C. A. Harbaugh. These elected F. S. Mosher, president; J. N. Antoine, vice-president; C. F. Sedgwick, treasurer, and E. E. Wallace, secretary and general manager.

CASTANA, IOWA.—M. F. Minthorn was elected president of the Castana Mutual Telephone Co. at the annual meeting of the board of directors held recently.

HOLLAND, MICH.—The following officers have been elected by the Drenthe Independent Telephone Co.: President, H. A. Lanning; vice-president, B. Ter Haar; secretary, treasurer and general manager, Dr. A. H. Brouwer. The directors include the foregoing and H. J. Dozeman.

JACKSON, MINN.—The annual meeting of the Jackson Telephone Co. was held recently, the following officers being elected for the ensuing year: C. P. Nissen, president; Jennie M. Getty, secretary; L. O. Teigen, treasurer.

NEW ULM, MINN.—The New Ulm Rural Telephone Co. has the following officers for the ensuing year: President, Fred Pfaender; vice-president, Dr. J. P. Graff; secretary, F. H. Retzlaff; assistant secretary, A. G. Bierbaum; treasurer, Wm. James; manager, Otto R. Kohn.

DILLON, MONT—The Centennial Telephone Co. at its recent annual meeting re-elected R. T. Boatman, of Monida, president; Frank Landon and James Boyle, directors, and Pearl I. Smith, secretary and treasurer.

GROTON, VT.—At the annual meeting of the stockholders of the Mollys Falls Telephone & Telegraph Co., held recently at South Cabot, Vt., the following officers and directors were elected: President, R. B. Kimmerson; vice-president and manager, M. E. Beckley; secretary, A. T. Davis; S. Swordfigger, F. Wallbridge. O. H. Smith was elected treasurer.

GOLDENDALE, WASH.—At the annual meeting of the stockholders of the Goldendale Telephone & Telegraph Co. officers were elected as follows: President, W. J. White; secretary and treasurer, F. Wilson. The company is incorporated for $50,000 and is backed by local capital.

Underground.

SAN FRANCISCO, CAL.—The Harbor Board has directed the Pacific Telephone & Telegraph Co., as well as all other wire using companies, to remove all poles and overhead wires from El Embarcadero from the ferry building north to Lombard street and to place the wires in underground conduits. The work must be completed by next January.

QUINCY, ILL.—The city council has passed an ordinance requiring all telephone and telegraph companies to place their wires underground in a certain downtown district before September 1, 1913.

CUMBERLAND, MD.—The Chesapeake & Potomac Telephone Co., of Baltimore, has accepted the city's proposition for a franchise permitting it to lay wires underground. Work will probably be started soon.

DENISON, TEXAS.—The Southwestern Telegraph & Telephone Co. is arranging to bury all its wires in the business section.

Miscellaneous.

WALNUT RIDGE, ARK.—The Lawrence County Telephone Co., has been purchased by the Southwestern Telegraph & Telephone Co.

SOLDIER, IDAHO.—The Soldier Creek Mutual Telephone Co., the Corral Creek Mutual Telephone Co. and the Soldier Local Independent Telephone Co. has consolidated their systems under the name of the Camas Prairie Mutual Telephone Co., Ltd., with headquarters at this point.

MILFORD, ILL.—The Milford Telephone Company's plant has been bought by R. C. Walkup, of Crawfordsville, Ind.

CLEAR LAKE, IOWA.—The Western Electric Telephone Co. has purchased the Oakwood Park line. It will put in a full metallic system and will extend the line to Dodges Park and other nearby localities.

ATWOOD, KANS.—George O. Jacobs, proprietor of the Atwood Independent Telephone Exchange, operating local and long distance lines in Rawlins and Thomas counties, has disposed of his interests to the Oberlin Telephone Co. and the St. Francis Telephone Co. The latter will assume charge of the properties July 1.

BLUE SPRINGS, NEB.—The Blue Springs Telephone Co. has closed a deal for the purchase of the local properties of the Lincoln Telephone & Telegraph Co. The plant which has changed hands was formerly owned and operated by the Nebraska Telephone Co.

MURFREESBORO, TENN.—The Home Telephone Co., which has been establishing exchanges and toll lines in the territory adjoining this city, is now making preparations to enter Murfreesboro.

TEAGUE, TEXAS.—The Central Texas Telephone Co. has sold its local exchange to the Southwestern Telegraph & Telephone Co.

CHESAW, WASH.—The Chesaw-Myncaster Telephone Co. has leased its system to the East Okanogan Farmers' Telephone Co. for ten years.

WARDEN, WASH.—The Hicksville-Wheeler Telephone Co. has purchased the local system of the Warden Telephone Co. The lines of the purchasing concern will now be extended to this town and will be extended throughout southern Grant county.

Out of the Mail Bag

Everybody is interested in a letter from abroad. E. J. Phillips, secretary and manager of the United Farmers' Telephone & Telegraph Co., at Gardnerville, Nevada, received a letter from Bombay, India, May 7, and kindly passed it along to TELEPHONY, with the comment: "It shows how far your paper reaches."

The letter is from E. A. Steele, who is in charge of the operating and maintenance departments of a telephone plant in Bombay which serves 2,100 subscribers. He begins his letter to Mr. Phillips: "Having seen the announcement in TELEPHONY that you are one of the organizers of a new telephone company, I thought you would not mind letting me have the particulars as to the necessary steps to take when organizing such a corporation." Mr. Steele is planning to leave India next year and may return to the United States, after enjoying a wide experience in England and India.

"I could not get along without my TELEPHONY once a week," writes G. T. Swain, manager of the Paulding (Ohio) Home Telephone Co. "If I should miss getting it I would be lost, and have to quit business, so you can see how I prize your product."

The Steuben County Electric Telephone Co. at Angola, Ind., writes that two of its directors and the secretary and manager—Harry E. Wilder—take TELEPHONY. "We would not do without it," adds Mr. Wilder.

"I have been a reader of your paper eleven years, and think it well worth the money," writes L. A. Cutshall, of El Paso, Tex. "The fact of the matter is that I have been engaged in the telephone business, in the Independent field since its inception, and the paper has been of great benefit to me since I first subscribed."

"Trouble Wagon" of the Alaska Telephone & Telegraph Co., Nome, Alaska.

"Three of our men take TELEPHONY," writes the Northern Iowa Telephone Co., at Cresco, Ia. "They do not care to be without it."

"We not only take TELEPHONY, but we read it," writes G. P. Knittle, manager of the Maquoketa (Ia.) Home Telephone Co. "We are always anxious for Saturday to come, because that means TELEPHONY."

In reporting a change of address, J. E. Reed, a Chicago subscriber, writes: "I do not wish to be without your magazine, however much I may move around."

Frank E. Munsell, manager of the Hamilton (Mo.) Telephone Co., writes: "I have been a subscriber to TELEPHONY eight years and cannot do without it."

Another telephone man in the "Show me" state—E. E. St. Clair, of the Downing (Mo.) Telephone Co., says in a recent letter: "All good telephone men read TELEPHONY, and we claim to be crackerjacks."

"Please find enclosed money order to renew my subscription to TELEPHONY," writes T. A. Kramer, of the Jones County Telephone Co., of Anamosa, Ia. "I think you have the best telephone paper published."

D. W. Vest, manager of the Vest Telephone Co., which operates exchanges at Frost and Barry, Texas, remits for a subscription for S. W. Denton, local manager and wire chief, and adds: "Mr. Denton enjoys reading TELEPHONY very much and states that he gets good points from reading it."

"I enclose money order for a year's subscription," writes Ernest Rahm, of Manistique, Mich. "I am well pleased with your paper and need it in my business."

"I see I cannot do without your paper," writes J. H. Longstreet, of Greenville, Pa., in sending in his check for renewal.

"Enclosed find check to pay the freight on TELEPHONY," writes M. S. Booker, secretary of the Buffalo County Telephone Co., of Pleasanton, Neb. "I would not try to raise a family without it."

"I think TELEPHONY a good paper and am glad when I receive it," says C. M. Edwards, Jr., manager of the Scottville (Ill.) Telephone Co., in a letter renewing his subscription.

"I consider a telephone man without TELEPHONY like a business house without a telephone," writes E. F. Barker, a Chicago subscriber, in renewing for 1912.

In a letter enclosing check for renewal, C. W. Emmer, manager of the Beaumont (Texas) Telephone Co., writes: "I desire to take this manner of commending your management for the very efficient work they do in getting out a paper that is of value to every man in the telephone business."

"I have been a subscriber to your valuable paper for the past seven years," writes Theo. Holien, secretary and treasurer of the South Dakota Rural Telephone Co., at Jasper, Minn. "I do not see how we could get along without it, as it is an inspiration every week to get the paper."

E. B. Kemp, manager of the Corning (N. Y.) exchange of the Corning Telephone Co., writes: "I am a regular subscriber to TELEPHONY and look forward to each week's issue."

"I am compelled to stop long enough to express my appreciation of your valuable journal TELEPHONY," writes Edward F. Ford, of San Francisco, who was chairman of the campaign committee of the Municipal Telephone & Anti-Merger League.

"TELEPHONY has always been full of interest to me," writes A. S. Hedge, of Pella, Ia., "and any one connected with telephone interests—whether stockholder or employe—cannot afford to be without your paper."

"Judging from conversations we have had with various telephone managers and employes, we think that many others, like ourselves, depend upon TELEPHONY for light on all subjects pertaining to the business," writes John Tripp, manager of the Kibbie Telephone Co., of South Haven, Mich.

F. Hammond, assistant manager of the Peoples Telephone Co., at Chesterhill, Ohio, in a recent letter, says: "Both W. H. Penrose, the manager and I are now reading TELEPHONY and like it very much."

In making his remittance to TELEPHONY, Joseph Gross, a Chicago, subscriber, says: "I enjoy your paper very much, especially the news about the Independents."